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A. M. A. CONVENTION, ATLANTIC CITY, N. J., JUNE 10-14, 1935

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Complete Contents on Page 3—SAUNDERS ANNOUNCEMENT

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THE DIFFERENTIAL DIAGNOSIS OF THE LEUKEMIC STATES

WITH PARTICULAR REFERENCE TO THE IMMATURE CELL TYPES

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A thorough knowledge of hematopoiesis is essential for a careful differentiation of the various types of leukemia. No longer are these dyscrasias considered "diseases of the blood" but rather dysfunctions of hematopoietic tissues.[1] Until the second decade of the twentieth century with the work of Reschad and Schilling-Torgau [2] and others, there were recognized only two types of leukemia: myeloid, arising in the bone marow, and lymphatic, having its origin in the lymphoid tissue. The recognition of a third type of leukemia involving the monocytic series of cells has engendered new ideas concerning the origin and classification of blood cells.[3] As a result of this stimulus, many conflicting theories have arisen.

PRESENT CONCEPTION OF HEMATOPOIESIS

Investigators are in accord only in a single concept—that all blood cells have their origin from the mesenchymal cell of the mesodermal layer in the embryo.[4] From this point, opinions diverge in many directions.

Pappenheim [5] and later Maximow [5] are considered the founders of the monophyletic theory. According to this view, in adult life all types of blood cells have a common origin from a single primitive stem cell with azurophilic, basophilic cytoplasm, which is called "lymphocyte" by some investigators and "hemocytoblast" (Feratta [5]) by others.

According to the polyphyletic or dualist theory, advanced by Ehrlich,[6] this common ancestral cell is not present after birth but there are two precursors in postnatal life: the myeloblast giving rise to granulocytes, erythrocytes and monocytes and the lymphoblast, from which mature lymphocytes develop. Naegeli,[7] although not in complete accord in minor details, is considered a strict dualist, believing that granulocytes, red cells, platelets and monocytes arise from the myeloblast. Piney [1] has adopted a modified polyphyletic point of view. He believes in the existence of three postnatal stem cells: (1) an erythroblast, which has a unique maturation cycle and produces mature red blood cells, (2) a myeloblast, which is the precursor of both myeloid and monocytic leukocytes, and (3) a lymphoblast, which gives rise to lymphoid cells.

Further divergence is found in the trialistic concept, championed by Schilling [8] and sponsored by many of the more recent contributors, including Aschoff and Kiyono,[9] Cunningham,[10] Dameshek,[11] Sabin [12] and Merklen and Wolf.[13] This school places the monocytic series of cells in a separate cycle of maturation, tracing its origin from a postnatal stem cell, the monoblast, which in turn arises from a primitive stem cell of the reticulo-endothelium. This primitive stem cell is found in all blood forming tissues. In the bone marrow it gives rise to myeloblasts and megaloblasts, in lymph tissue to lymphoblasts, in outside reticulo-endothelium to monoblasts and to macrophages or fixed tissue cells. From this point of view there are three sites of hematopoiesis, the bone marrow, the lymphoid tissues and the so-called reticular-endothelial system, and as a result three respective types of leukemia.

Leukemia is defined by Musser and Wintrobe [14] as "a morbid condition characterized by widespread hyperplasia of the leukopoietic tissues." Piney [1] does not consider simple hyperplasia to be sufficient description of the existing pathologic condition. He believes that in almost every case of myeloid leukemia there is a tendency toward "Lenaz's monophasic anaplasia" in which there are great aggregates or foci of cells of a single immature type, at which point maturation has stopped, generally at the leukoblast stage. Surrounding these foci there is a simple hyperplasia.

At this point a question arises. In the leukemic states, does hyperplasia occur in the normal sites of origin of these various cells or is there in addition a reversion to embryonic conditions in which extramedullary hematopoiesis occurs? It seems certain that the

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Read before the Section on Radiology at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 14, 1934.

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7. Naegeli, Otto: Blutkrankheiten und Blutdiagnostik (Blood Diseases and Blood Diagnosis), ed. 5, Berlin, Julius Springer, 1931.
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9. Aschoff, L., and Kiyono, K.: The Question of the Large Mononuclears, Folia haemat. **15:** 383 (June 24) 1913.
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14. Musser, J. H., and Wintrobe, M. M.: Diseases of the Blood, in Tice, Frederick: Practice of Medicine, Hagerstown, Md., W. F. Prior Company, 1921 edition supplemented, volume 6, chapters 1-5.

latter condition does exist in myeloid leukemia, where, according to Naegeli,[7] not only can an active hyperplasia develop normally in the bone marrow, but there is extensive extramedullary myelopoiesis in the connective tissues of the body. He believes that these secondary foci in the spleen are responsible for its increased size as well as an accumulation of cells gathered from the blood stream.

There is further evidence to favor the view that in leukoses variation in the origin of leukocytes is the rule rather than the exception. In lymphatic leukemia, autopsy generally shows a terminal lymphoid proliferation in the bone marrow. There is some evidence that in monocytic leukemia the monocyte, regardless of where it arises under normal conditions, has its origin chiefly in the bone marrow. A number of the reported cases have terminated as typical myeloblastic leukemias. The formation of secondary foci has been considered as a metastasis starting from the bone marrow, lymph tissue or monocytic centers.[15] Others do not consider this extramedullary hyperplasia a metastatic condition but rather "the activity of the reticulo-endothelium widely scattered throughout the body." Under the proper stimulus this undifferentiated mesenchymal tissue becomes active, causing a reversion to embryonic blood formation.[16]

Since anemia and hemorrhagic tendencies are almost invariably sequelae of the leukemic states, some discussion of erythropoiesis and thrombopoiesis should be given. In addition, some explanation should be made to emphasize the unfortunate relationship of the leukemic process to erythrogenesis.

According to Doan's[17] studies, red cells begin their maturation in gelatinous bone marrow and have their immediate origin from the inside lining of the closed vascular sinusoids. A sluggish blood flow, low oxygen tension, and collapsed sinusoids favor erythrogenesis.[18] The endothelial lining of these blood vessels swells and gives rise to megaloblasts, which in turn eventually form mature erythrocytes. These corpuscles are forced into the blood stream as the blood passes from the vascular bed of the marrow to the peripheral circulation. White cells are formed extravascularly and pass into the blood vessels by their own motility. Granulopoiesis is said to begin when the collapsed sinusoids dilate and is more active in areas richly supplied with blood.[17b] Doan[17b] and Sabin[18] state that this difference in time and location for erythropoiesis and granulopoiesis necessitates a functional division of the two processes. For this reason, an excessive stimulation of myeloid tissue such as in myelosis, resulting in a flushed vascular bed, may produce an unfavorable environment for normal red cell formation. This condition plus an actual mechanical obliteration of erythropoietic tissue by excessive myeloid hyperplasia may be a predisposing factor for the inevitable anemia accompanying a majority of the leukemias.

LEUKOBLASTS

A differentiation of the three types of leukoblasts on morphologic criteria offers a difficult cytologic problem. The myeloblast, lymphoblast and monoblast present many similarities. There is little difference in size and morphology at first glance. All have a round, red purple nucleus with a clear, deeply staining nongranular blue cytoplasm. Naegeli[7] believes that the myeloblast may be distinguished from the lymphoblast chiefly on fine nuclear criteria. According to his concept, the nuclear chromatin is finer and more homogeneous than in the lymphoblast, the chromatin of which has a coarse arrangement and appears dense at the edges of the nucleus, giving evidence of a definite nuclear membrane. Another point of distinction is the number of nucleoli: myeloblasts contain from three to five pale nucleoli, while lymphoblasts show a smaller number, generally from one to three. The presence of a definite perinuclear zone is characteristic of the lymphoblast and is rarely, if ever, found in typical myeloblasts. Obviously, these aids to distinction are inadequate and final differentiation depends more on association of the indefinite cell types with the more easily recognized cells, which belong to the same series.

With regard to the monoblast, there are differences of opinion as to whether it can be definitely distinguished from the other two leukoblasts. It is agreed that it cannot be distinguished by ordinary staining methods. Naegeli[7] makes no effort to isolate this cell type. He offers evidence that monoblasts and monocytes are myeloid in nature by the similarity of nuclear structure, the characteristic maturation of the nucleus in its basioxychromatin structure, the segmentation of the monocytic nuclei occurring with age, and the positive oxidase, peroxidase dopa reactions and positive lipoid granule stains.

Other investigators[19] definitely classify monocytes into a separate group of leukocytes. Their conclusions have resulted from supravital staining technic and their distinction between the three leukoblasts rests on the size, position and structure of mitochondria and neutral red vacuoles. Naegeli[7] states that these supravital changes have not been substantiated by other investigators (Hall, Newer, Maximow, Bloom).

The oxidase reaction in the three primary leukoblasts is negative, since none contain granules. This test, devised by Graham[20] and Goodpasture,[21] and later modified by Sato and Yoshimatsu,[22] is, however, of great diagnostic value in a differential diagnosis of acute lymphatic and myeloid leukemias. When this test is positive, a diagnosis of myeloid leukemia can be made with fair certainty. A negative test, however, does not rule out the possibility of a predominance of myeloblasts. In this instance other diagnostic aids must be employed; i. e., histologic changes and the indophenol blue synthesis[23] test, which is positive in myeloid leukemia and negative in lymphatic.

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19. Doan,[4] Sabin,[12] Schilling,[8] Dameshek,[11] Cunningham and Tompkins,[10] Sydenstricker, V. P., and Phinizy, T. B.: Acute Monocytic Leukemia, Am. J. M. Sc. **184**: 770 (Dec.) 1932.

20. Graham, G. S.: Benzidine as a Peroxidase Reagent for Blood Smears and Tissues, J. M. Research **39**: 15 (Sept.) 1918.

21. Goodpasture, E. W.: Peroxidase Reaction with Sodium Nitroprusside and Benzidine in Blood Smears and Tissues, J. Lab. & Clin. Med. **4**: 442 (April) 1919.

22. Sato, Akira, and Yoshimatsu, S.: Peroxidase Reaction in Epidemic Encephalitis: New Diagnostic and Prognostic Method, Am. J. Dis. Child. **29**: 301 (March) 1925.

23. Indophenol blue synthesis (W. H. Schultze's modification) for blood films: 1. Fixation in 40 per cent solution of formaldehyde plus absolute alcohol (equal parts). 2. Stain for three minutes in a mixture of solution A and B (one part of A plus four parts of B). 3. Counterstain for three minutes with Giemsa's stain (Grubler) and examine the preparation while immersed in water. Myeloid granules and myeloblasts stain blue; lymphocytes, no stain; monocytic granules stain blue. Solution A: One hundred cc. of 1 per cent alpha-naphthol in physiologic solution of sodium chloride to which is added 1 cc. of tenth normal sodium hydroxide. Solution B: A 1 per cent solution of paradimethylparaphenylenediamine base (Merck) in physiologic solution of sodium chloride.

There is a wide difference of opinion concerning the oxidase reaction in monocytic leukemia. Until the disease has been studied more fully and proved a separate entity, this test is of little diagnostic aid. Naegeli [7] states that mature monocytes are peroxidase positive and does not recognize a monocytic type of leukemia. His description of the condition is a "monocytoid phase of myeloid leukemia."

We have studied carefully the cases of monocytic leukemia in the Hematological Registry, which is, no doubt, the largest collection existing, and have noted the large percentage of well studied cases that eventually terminate as definite myeloid leukemia. This would indicate, at least, that under leukemic conditions the monocytic cell is identical with the myeloblast.

THE CHRONIC LEUKEMIAS

Chronic myelosis and lymphadenosis are diseases of middle and old age and are rare in young people. The onset of chronic leukemia is insidious and the duration variable, the usual course being from two to five years. A physician seldom sees chronic leukemia in its incipient stages; the disease is usually well established before the patient seeks medical aid.

In chronic myelosis the usual complaints are a feeling of fulness and pressure in the epigastrium (due to the splenic tumor), disturbances of digestion, pain in the left side of the abdomen, fatigue and pallor. The splenic tumor may fill half the abdomen. Other clinical manifestations are disturbances in sight and hearing, pains in the gums, diarrhea, dyspnea and palpitation of the heart. The bones are often sensitive to pressure. The blood picture is characterized by high leukocyte counts, usually from 100,000 to 400,000; counts as high as 1,000,000 have been found. The criterion of a leukemia, however, is not the number of white cells but the type of white cell present. In myelogenous leukemia the cells of myeloid origin usually constitute about 95 to 99 per cent of the cells, with the neutrophilic myelocyte as the predominating abnormal cell type. Myeloblasts may be present in from 1 to 3 per cent in the early stages, usually increasing later or in a transition to an acute form. Naegeli [7] states: "The most important feature of a leukemia is not the high leukocyte count but the fact that the blood shows all cells of myeloid tissue so that really only quantitative differences exist between leukemic blood and normal bone marrow." The blood is viscous, possesses oxydase and peptic ferments and gives a typical positive indophenol blue reaction. There is moderate to severe anemia, and the platelets are usually increased in number.

In chronic lymphatic leukemia the patient usually visits the physician because of a painless but progressive swelling of the lymphatic glands, especially the cervical, axillary and inguinal glands. The spleen is usually enlarged. There are infiltrations and hemorrhages in the retina, and sometimes infiltrations into the skin.

The hematologic picture shows a leukocyte count, usually of several hundred thousand, with small lymphocytes predominating, even 99 per cent. Smudge forms are constant. The platelets are almost always decreased. The red cell count and hemoglobin are not decreased in the first stages, but, as the disease progresses, moderate or severe anemias occur. The blood shows no oxydase or peptic ferments and a negative indophenol blue synthesis.

THE ACUTE LEUKEMIAS

Since Virchow first described leukemia there has been a constant evolution of ideas concerning its histologic and hematologic manifestations. It is one of the oldest of known blood diseases, yet knowledge of its etiology has advanced little since Ehrlich's time. A long list of imposing names is linked with the subject of leukemia. Sherrer,[5] soon after its discovery, believed the spleen to be a genetic factor in one type of leukemia and therefore proposed two kinds of leukemia: splenic and lymphatic. Newman [5] found bone marrow changes in the splenic type and thus established myelogenous leukemia. Ehrlich [5] gave a classification and propounded the dualist theory for the origin of leukocytes. Naegeli [7] was the first to recognize and describe myeloblastic leukemia. Before this time these cells were thought to be lymphocytes. Furthermore, he exploded the theory of a transition from myeloid to lymphatic leukemia. He states that "all acute myeloid leukemias arise as myeloblastic, and the chronic form, in exacerbation and before death, eventuates into secondary myeloblastic leukemia." Kundrat [5] was one of the first to recognize that leukemia affected not only a single organ but the entire body. Meyer and Heineke [5] (1907), Naegeli and Fabian [5] (1907) and Schridde [5] (1908) proved that extramedullary metaplasia of myeloid tissue occurs in both physiologic and pathologic conditions.

The acute form of leukemia is a disease of the young, occurring most frequently in individuals under 25 years of age. For many years acute leukemias were considered lymphatic in nature. It is now generally recognized that acute leukoses in adults are myeloid in type. Naegeli [7] emphasizes this point: "I doubt whether a certain peracute lymphatic leukemia exists in an adult." Certainly no convincing cases have been reported within the last ten years. This condition in children, however, is almost invariably lymphatic in origin.

Clinically, there is a sudden onset and a rapidly fatal course. When a patient presents the clinical and hematologic picture of an acute leukemia and lives longer than six months, the condition is probably an acute exacerbation of a chronic process that has existed for a long period of time with no noticeable symptoms. Into this class fall many of the reported cases of acute leukemia. Too much stress should not be made, however, on the duration of illness as a distinction between the chronic and acute forms.

Acute myeloblastic and lymphatic leukemias are identical clinically and symptomatically. The patient generally becomes ill with dramatic suddenness and exhibits all or a few of the following conditions: headache, extreme prostration, pain in the joints, a necrotic gangrenous gingivitis, bone pains, retinal changes, vomiting, diarrhea, hemorrhages, and severe and progressive anemia. Generalized glandular enlargement and increase in size of spleen and liver are variable physical manifestations, whereas cervical adenopathy is of more frequent occurrence. In some instances these characteristic changes are absent and the disease may appear diagnostically obscure, simulating sepsis or any variety of acute conditions.

Acute myeloblastic leukemia usually presents the following blood picture: 1. A subleukemic leukocyte count, if taken during the early stages of the disease, which ranges from a few thousand to 30,000 or 40,000 per cubic millimeter. The count may rise rapidly to

100,000 or slightly higher, but rarely to the figures found in untreated chronic forms. 2. A marked anemia, which in the later stages presents a microscopic picture of pernicious anemia with hyperchromic cells, polychromatophilia, normoblasts, megaloblasts and marked variation in size and shape. 3. A marked reduction in the number of platelets, which explains the frequency of the hemorrhagic diathesis accompanying acute leukemias. 4. A preponderance of myeloblasts, which on superficial examination appear to belong to the lymphocytic series. Close examination will finally reveal, however, the intermediate faintly granulated premyelocyte, the presence of which in sufficient numbers makes the diagnosis a certainty. In some cases neutrophilic myelocytes are present in large numbers. In addition to these predominant cell types there are found frequently a few mature neutrophils.

In some instances the microscopic picture may consist entirely of myeloblasts, micromyeloblasts and mature segmented neutrophils without any of the other intermediate forms found in the normal maturation cycle. Naegeli [7] calls this phenomenon "hiatus leucaemicus" and considers it an infallible sign of an acute phase. Warren,[24] in 1929 in a review of the literature and a report of twenty-eight of his own cases, found only eighty-five from 500 cases in the literature that could be classified without criticism as true examples of acute myeloblastic leukemia. Ordway and Gorham [16] give the following postulates for substantiating the diagnosis of this condition:

1. An aleukemic or subleukemic stage.
2. An acute downward course with death usually ensuing within from one to four months.
3. The characteristic blood picture of myeloblasts, myelocytes and the transition forms between the two.
4. The typical gross and histologic changes in the liver, spleen, bone marrow and lymph glands.
5. The specific proof of myeloid elements by enzyme reactions.

The clinical changes and blood picture of acute lymphatic leukemia are identical with myeloblastic leukemia with the exception of the predominant cell type involved. The large lymphocyte and lymphoblast predominate. The azure granulation characteristic of normal lymphocytes is absent, according to Naegeli's [7] observations, thus fortunately preventing confusion with granulated premyelocytes of the myeloid series. As a rule, the differential diagnosis between these two types of leukemia presents difficult problems. The diagnosis is easy if in myelosis the characteristic premyelocytes and myelocytes are present in sufficient numbers to give a peroxidase positive reaction. Otherwise differentiation rests on the obscure morphologic differences between myeloblasts and lymphoblasts or the more exact indophenol blue synthesis. Occasionally myelocytes, sometimes as high as 10 per cent, appear in lymphadenosis to confuse the diagnostician further. These are called "irritation myelocytes" by Pappenheim and appear only in the early stages of the disease.[16] These myelocytes are typically mature with no accompanying premyelocytes, as seen in myeloblastic leukemia.

It is difficult to separate the acute leukoses on a clinical basis. An extensive glandular enlargement, however, favors the diagnosis of lymphadenosis, but its absence does not exclude myelosis.

One of the diagnostic difficulties relative to acute lymphatic leukemia is its confusion with acute benign lymphadenosis or infectious mononucleosis. Their similarity in the early stages is a diagnostic pitfall for both experienced clinicians and veteran hematologists. Both are diseases of childhood or young adults. Both are characterized clinically by an acute onset, high fever, generalized adenopathy and sore throat of the ulcerative type, and hematologically by a relative and absolute lymphocytosis. It is generally agreed that the predominating lymphoblast appearing in both conditions cannot be distinguished morphologically with certainty, although Downey and McKinlay [25] published in 1923 a report of nine cases in which they gave a criterion for separating these cell types.

There are, however, some striking differences in the two conditions. Infectious mononucleosis is milder in its clinical manifestations, running a benign and harmless course. Red cell and platelet changes are never sequelae of this disease. As a general rule, the leukocyte count is lower than in acute lymphatic leukemia.

It is safer to be cautious and follow the rule that a diagnosis of acute lymphatic leukemia is dangerous on morphologic grounds alone and in the absence of red cell and platelet reductions.

A discussion of the acute leukemias would not be complete without introducing the subject of a new type of leukemia, reported first by Reschad and Schilling-Torgau [2] in 1913. They discovered what they consider a leukemia of the monocytic series of leukocytes in which the predominant cell type is a typical "transitional" cell or monocyte. Other authors [26] separate the development of the monocyte from the other leukocytes. It is interesting to note what the leaders of the monophyletic and dualistic schools reported on examination of a smear sent to them from this case. Pappenheim, the leader of the monophyletic theory for the origin of leukocytes, reported "a selective, highly pronounced monocytosis characterized by the presence of genuine transitional forms of the lymphatic type." In contrast to this view, Naegeli, a strict dualist, in a recent correspondence, classified this type of leukemia as a "monocytic leukocytosis" or as an atypical type of myeloid leukemia. Fleischmann [27] in 1915 reported the second case of monocytic leukemia. He is in agreement with Naegeli, since he believes that his case changed to a myeloblastic leukemia in the terminal stages. This view is likewise upheld by Ewald, Frehse and Hennig,[28] Alder [29] and others. On the other hand, Dameshek,[11] Merklen and Wolf,[13] Sydenstricker and Phinizy,[19] Clough,[30] Lawrence, Josey and Young [31] and a majority of the American authors are inclined to support the conception that this third type of leukemia exists and that the monocyte has an independent and separate cycle of maturation.

24. Warren, S. L.: Acute Leukemia: A Review of the Literature and of Twenty-Eight New Cases, Am. J. M. Sc. **178:** 490 (Oct.) 1929.

25. Downey, Hal, and McKinlay, C. A.: Acute Lymphadenosis Compared with Acute Lymphatic Leukemia, Arch. Int. Med. **32:** 82 (July) 1923.

26. Cunningham, R. S.; Sabin, Florence R., and Doan, C. A.: The Development of the Leukocytes, Lymphocytes and Monocytes from a Specific Stem Cell in Adult Tissues, Carnegie Institution of Washington, Pub. 316, Contributions to Embryology **16:** 227, 1925 (cited by Sabin [24]).

27. Fleischmann, P.: The Second Case of Monocytic Leukemia, Folia haemat. **20:** 17 (Oct.) 1915.

28. Ewald, Frehse and Hennig: Acute Monocytic and Myeloblastic Leukemia, Deutsches Arch. f. klin. Med. **138:** 353 (Feb.) 1922. Ewald, O.: Leukemic Reticulo-Endotheliosis, ibid. **142:** 222 (April) 1923.

29. Alder, A.: Abnormal Cell Forms and Their Frequency in Acute Myelosis, Folia haemat. **29:** 105 (June) 1923.

30. Clough, P.: Monocytic Leukemia, Bull. Johns Hopkins Hosp. **51:** 148 (Sept.) 1932.

31. Lawrence, J. S.; Josey, I. A., and Young, M. W.: Monocytic Leukemia: Report of Three Cases, Folia haemat. **44:** 332 (June) 1931.

From a review of thirty-two published cases in England and America and sixteen unpublished cases on file in the Hematological Registry, it may be said that, in general, monocytic leukemia differs little clinically from the other acute leukemias other than in age limits, which range from 1 to 78 years and average around 40 years. It occurs in males about twice as frequently as in females. The onset is generally insidious, with fever, malaise and marked pallor. Gingivitis of the ulcerative type is found in about half of the cases. Bleeding and petechial hemorrhages are prominent in the histories. Enlargement of lymph glands is a variable physical finding. The duration of the disease varies from ten weeks to two years. The course is progressively downward, with sequelae of marked anemia, bleeding and petechiae. The leukocytes range from 600 to 320,000 per cubic millimeter. Red cells and platelets are markedly decreased in the last stages of the disease.

The diagnosis of this type of leukemia rests entirely on the morphologic examination of the stained blood cells. The cell type is the fully developed, mature monocyte and in some cases the histiocyte. Many authors believe that this cell cannot be identified with certainty without a confirmation with supravital stains. As yet no agreement exists as to whether monocytic leukemia is a disease entity. Until the points at issue in regard to the origin of the monocytes are settled, an attempt to classify this condition as chronic or acute would be difficult.

THE ALEUKEMIC STATE

In all types of leukemia, especially the acute forms, the process may undergo at one time or another an aleukemic phase in which the leukocytes drop below the normal level. This phase cannot be distinguished clinically, organically or histologically from the more typical leukemic conditions. The term "aleukemia" is misleading. The condition probably should be considered a leukopenic phase of the existing leukemic process. The reason for the disappearance of the leukocytes in the peripheral blood is shrouded in mystery. This phase may occur at any stage of the disease or the patient may be seen by the physician for the first time with a marked leukopenia, a severe anemia of the hyperchromic megaloblastic type, and a decided decrease in platelets with the resulting hemorrhagic diathesis. In this case the condition becomes of special importance diagnostically.

If the condition is myeloid in nature, a correct diagnosis is more easily made. According to Pinkerton,[32] a comparative study of five cases of aleukemic myeloid leukemia shows a "diversity of clinical symptoms" but a marked anatomic and postmortem similarity. As a rule, patients suffering from this condition show an enlarged spleen, a myeloid hyperplasia of lymph nodes and other organs and a hyperplastic bone marrow in addition to leukopenia, progressive anemia and thrombopenia. The predominant cell type is the myeloblast when this phase occurs in acute myelosis and the myelocyte when the patient is suffering from the chronic form. Thus, in this instance the differential count with its high percentage of immature cells, the severe primary anemia blood picture, hemorrhagic tendencies, and an enlarged spleen make one suspicious of leukemia despite the low leukocyte count. It is true that in many instances there is no splenic or glandular enlargement. At any rate, a diagnosis cannot be made with assurance until the leukocytes rise to leukemic levels or the biopsy and autopsy finding of myelosis clears up uncertainty.

In aleukemic lymphadenosis, which is said to be more prevalent than the myeloid type, the diagnosis is even more difficult. The signs and symptoms are those of acute leukemia. Gross hematologic changes are identical with those of aleukemic myelosis: leukopenia, anemia, thrombopenia. The differential count alone differs. In the microscopic picture the lymphoblast and mature lymphocyte predominate, depending on the acuteness or chronicity of the underlying pathologic changes. In the latter, it is generally impossible to distinguish the condition from a typical aplastic anemia, in which again there are marked thrombopenia, neutropenia and erythropenia. There are only a few fine points of distinction. In aplastic anemia the physical changes are entirely negative, the anemia is a normocytic, normochromic type with no normoblastic regenerative changes, and the bone marrow is typically aplastic. In aleukemic lymphadenosis there is in some cases a lymphoid enlargement and hyperplasia, and the anemia is more often of the hyperchromic, normoblastic and megaloblastic type. There is frequently a marked variation in size and shape of the red corpuscles and, as a rule, the platelets do not reach the low levels found in aplastic anemia. As in the myeloid type, diagnosis may depend entirely on biopsy and autopsy observations unless the patient survives this depression phase and eventuates into a typical leukemic state.

Not only is it difficult to distinguish the various types of aleukemia from one another and from aplastic anemia, but they are easily confused with certain stages of granulopenia, Vincent's oral sepsis, the hemorrhagic states, and pernicious anemia.

Typical acute cases of granulopenia are not hard to differentiate, since the neutropenia is more marked and progressive in this condition and the red cells and platelets are only slightly affected. In those cases of granulopenia, however, which show the erythropenic-thrombopenic syndrome, one encounters the same diagnostic difficulties as in separating the aleukemic states from the aplastic anemias. Only one point of difference exists: the anemia associated with granulopenia is generally of secondary type until the terminal stages, when it becomes inseparable from aplastic anemia.

Vincent's oral sepsis is confused with aleukemic states only temporarily and clinically. Oral sepsis and Vincent's ulcerative lesions may be the first clinical symptoms to bring a leukemic patient to the physician's attention. A blood examination quickly reveals the more serious nature of the condition.

On the other hand, profuse bleeding or petechial hemorrhages may be the first outstanding manifestation of aleukemic leukemia leading the physician to suspect a simple purpuric condition. Careful hematologic and physical examinations will soon reveal the error in diagnosis, since the purpuric states show a normal leukocyte count and secondary anemia only when hemorrhages have become of such severity as to lead to definite loss of blood volume. Platelet counts, time of bleeding and coagulation will serve to aid in the differential diagnosis.

Aleukemic leukemia and pernicious anemia are similar only in the type and degree of anemia, since both show a hyperchromic erythrocyte picture. Except in the terminal stages of pernicious anemia, the leukocyte count is normal or only slightly depressed, the differ-

32. Pinkerton, Henry: Aleukemic Leukemia and Typical Leukemoid Conditions, Arch. Path. 7: 567 (April) 1929.

ential count is essentially normal and the platelets are little affected. The color of the skin and sclera, gastric changes and response to liver therapy will soon rule out or confirm the diagnosis of pernicious anemia.

CONCLUSIONS

1. There still remains no unanimity of opinion relative to the origin of white blood cells, but it seems probable that under normal conditions myeloid cells arise mainly from the bone marrow and lymphoid cells from the lymphoid glandular system, including the spleen.

2. It is virtually impossible to distinguish between the various types of leukoblasts with ordinary staining methods, or even with vital staining.

3. Cases of chronic leukemias can be diagnosed easily as well as acute forms provided the total white cell count is definitely increased with a preponderance of blast cells.

4. The leukemic states in which the total number of white cells is normal, or below normal, offer considerable difficulty in diagnosis both clinically and hematologically and are apt to be confused with various leukopenic diseases.

5. The most reliable criterion for the diagnosis of any leukemia is a preponderance of immature cells regardless of the total number. Studies on a large number of cases of monocytic leukemia that are filed in the Hematological Registry indicate that the chief cell type has its origin in the bone marrow and adds further evidence that monocytic leukemia is but an atypical phase of myelogenous leukemia.

LEUKEMIA

ITS DIAGNOSIS AND TREATMENT

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Of the serious disorders of the hematopoietic system, leukemia is most frequently encountered. Although usually associated with splenomegaly or lymphadenopathy, by the presence of which it is readily differentiated, leukemia may be confounded with other conditions characterized by anemia, infection, purpura or lymphadenopathy. The difficulty in diagnosis is due to the many variations that may occur both in the clinical picture and in the laboratory observations.

Leukemia has heretofore been regarded as a disorder characterized by a persistent increase in the number of white blood cells. According to the present conception of the disease, however, an increase in the number of white cells is not an essential diagnostic factor.

The present study comprises observations on 455 patients in Mount Sinai Hospital and in private practice during the past fifteen years, as classified in the accompanying table.

CLASSIFICATION OF MATERIAL

The cases observed were divided into two groups; namely, acute or chronic. Patients who lived three months or less were regarded as suffering from acute leukemia (38 per cent of our material); those who survived longer than three months were included in the chronic group (62 per cent). The cases were further classified according to the predominance of certain cells, as (1) myeloid leukemias (66.7 per cent), (2) lymphatic leukemias (27.6 per cent), and (3) monocytic leukemias (1.9 per cent). It is interesting to note that these percentages are identical with the percentage of the neutrophils, lymphocytes and monocytes present in normal blood.

For practical purposes, cases in which there were 15,000 leukocytes or less were considered leukopenic; those with a larger number of leukocytes were classified as leukocythemic. The number of leukocytes in our series varied from 400 to more than 1,000,000. The classification, therefore, utilized in this paper, i. e., leukopenic leukemia of an acute or chronic variety, is an arbitrary one and is not based on actual differences in the fundamental nature of the disease.

BLOOD PICTURE

The diagnosis of leukemia can usually be made from the blood count and an examination of the blood smear.

The presence of a persistent relative or absolute increase in the number of mature or premature white blood cells constitutes the important characteristic alteration in leukemia. The premature cells are the myelocytes and their nongranular precursors or myeloblasts, the premature lymphocytes or lymphoblasts and precursors of the monocytes or monoblasts. Mitotic myeloblasts and amitotic myeloblasts and lymphoblasts may occasionally be present.

The type of premature cell usually varies with the duration of the disease. Cases of acute leukemia are characterized by the presence of the more premature types of cells, particularly the myeloblasts, lymphoblasts and monoblasts; while chronic varieties have a tendency to display more mature types, such as polymorphonuclear neutrophils and myelocytes in the myeloid leukemias, and lymphocytes in the lymphoid leukemias.

The hemoglobin and the number of red blood cells are usually reduced in acute leukemias. In chronic types, anemia may be absent or only moderate at the onset. The anemia is hypochromatic, with a color index that varies from 0.5 to unity. Nucleated red cells are usually present.

The blood platelets present marked variations in leukemia. In the early stages of chronic leukemia they are normal, but they are usually profoundly reduced in acute varieties or in acute exacerbations of the chronic forms. In some of our cases of "polynuclear-celled leukemia" that followed polycythemia, a thrombocythemia, or persistent increase of the blood platelets from 500,000 to 2,000,000 per cubic millimeter occurred.

Occasionally, a typical leukemic blood picture was accidentally found in cases that were entirely asymptomatic and later showed symptoms of the disease.

SYMPTOMATIC VARIATIONS

Weakness and fatigue are common and persistent symptoms in leukemia. Abdominal distress, caused by enlarged viscera or lymph nodes, is a usual complaint. Frequently pain and ulceration in the upper part of the respiratory tract may be observed at the onset of the disease. Purpuric manifestations or uncontrollable bleeding, such as epistaxis, bleeding gums or persistent hemorrhages following a surgical procedure, may be the

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first evidence of the leukemic state. Gastro-intestinal hemorrhage is less frequent. Pallor, cough, arthralgia, myalgia and loss of weight may occur during the course of the disease.

Enlargement of the spleen is usually observed in myeloid leukemia; enlargement of the lymph nodes, particularly in the cervical region, in lymphatic leukemia. However, both the spleen and the lymph nodes may be involved in either type of leukemia. In one case of lymphatic leukemia there was an enlargement of the spleen without peripheral adenopathy. In acute leukemia, however, the splenomegaly and lymphadenopathy are less marked.

DIFFERENTIAL DIAGNOSIS

A typical case of leukemia, either acute or chronic, is usually differentiated by the presence of an increased number of white blood cells as well as mature or premature leukocytes. However, difficulty in diagnosis may be encountered in cases of leukopenic leukemia in which the number of leukocytes is normal or profoundly reduced. Such cases, when admitted to the hospital, are sometimes diagnosed as pernicious anemia, purpura haemorrhagica, agranulocytosis, subacute endocarditis, splenic anemia or other disorders.

Classification and Frequency of Various Types of Leukemias

	Percentage of All Cases	No. of Cases		Total No. of Cases
		Males	Females	
Myeloid Leukemia				
1. Acute myeloid leukemia	29.4			
(*a*) leukocythemic		67	30	97
(*b*) leukopenic		15	22	37
2. Chronic myeloid leukemia	34.5			
(*a*) leukocythemic		60	56	116
(*b*) leukopenic		26	15	41
3. Eosinophilic leukemia	0.6	1	2	3
4. Associated with polycythemia	2.2			
(*a*) myeloid leukemia		4	2	6
(*b*) polynuclear cell leukemia		4	0	4
Lymphoid Leukemia				
5. Acute lymphatic leukemia	7.0			
(*a*) leukocythemic		9	7	16
(*b*) leukopenic		10	6	16
6. Chronic lymphatic leukemia	20.6			
(*a*) leukocythemic		68	28	96
(*b*) leukopenic		4	4	8
Monocytic Leukemia				
7. Acute monocytic leukemia	1.5			
(*a*) leukocythemic		4	2	6
(*b*) leukopenic		0	1	1
8. Chronic monocytic leukemia	0.4			
(*a*) leukocythemic		0	0	0
(*b*) leukopenic		2	0	2
9. Aleukemic leukemia	1.3	3	3	6
Total		277	178	455

Anemia.—After the anemia has developed, it becomes progressive and responds only temporarily to the usual therapy for secondary anemia. If the color index is relatively high and nucleated red cells are present, the leukemia may simulate pernicious anemia. The characteristic macrocytosis of pernicious anemia is not observed, but the presence of myelocytes or myeloblasts is indicative of a leukemic condition.

All cases of chronic, progressive anemia with splenomegaly require continued and careful study of the blood. Leukopenic leukemia may simulate splenic anemia, hemolytic icterus, subacute endocarditis, Gaucher's disease and thrombosis of the splenic vein. Here again the presence of myelocytes or myeloblasts with a leukopenia or even with a normal number of leukocytes should provoke the suspicion of leukemia.

In rare instances the blood pictures of aplastic anemia and of leukopenic lymphatic leukemia may be identical with respect to the profound anemia, thrombocytopenia, leukopenia and relative lymphocytosis. In such cases the presence of splenomegaly or lymphadenopathy may indicate leukemia. In some cases the correct diagnosis can be made only by means of a biopsy on the bone marrow, which may reveal the lymphoid metaplasia of the rare medullary lymphatic leukemia or the hypoplasia of aplastic anemia.

Purpura.—Bleeding from the gums or nose or into the skin, as in purpura haemorrhagica, may occur at the onset in practically all forms of leukemia; as a matter of fact, this may be the only symptom for a long time. Severe anemia, due to considerable loss of blood, may supervene as the disease progresses. This bleeding tendency in leukemia is due to an associated deficiency of blood platelets, as in primary thrombocytopenic purpura haemorrhagica. It differs from the latter, however, in its differential blood count, which is typical of leukemia.

A striking example of this type of case was observed in our series. The patient was treated for epistaxis, bleeding from the gums, purpura and a progressive anemia. The leukocytic count was normal, but the abnormal cells in the spread had been overlooked. On the basis of the good results obtained from splenectomy in cases of purpura haemorrhagica, the patient was admitted to the hospital for splenectomy. Careful examination of the blood revealed that, in addition to a marked diminution in the number of blood platelets and a severe anemia, a characteristic increase had occurred in the number of myelocytes and myeloblasts. A diagnosis of myelogenous leukemia was made and splenectomy was not performed.

In two similar cases of our series, splenectomy produced no increase in the blood platelets. The purpura persisted and a leukocythemic type of leukemia developed.

In the acute type of all the leukemias, and in the late stages of the chronic forms, the number of blood platelets is reduced, but the hemorrhagic tendency does not correspond with the diminution of the platelets. Patients who have the same marked numerical diminution in blood platelets may react differently. In some there may be no signs of bleeding throughout the course of the disease; others may have hemorrhages of varying severity into organs such as the eyes, brain and middle ear, or from the mucous membranes. In one instance a puncture of the ear was followed by bleeding for twenty-four hours, which was controlled by a blood transfusion. In some cases the epistaxis and gingival bleeding may lead to exsanguination.

Infection.—Secondary infection is not unusual in leukemia. It may obscure the underlying condition, so that it resembles grip, subacute bacterial endocarditis, or agranulocytosis. Among the severe complications, pleurisy, pneumonia and alveolar abscess may be mentioned. Bacteremia, early or late in the course of the disease, was observed in about 2 per cent of our cases.

Fever may be present in chronic as well as in acute cases, but it is not necessarily the result of frank suppuration. It may disappear with the improvement in the general condition, following blood transfusions or radiotherapy.

Ulcerations of the mucous membranes are very frequent in acute leukemias. The gums may be involved, producing a considerable amount of pain and swelling,

particularly in the lower jaw. At times extraction of teeth may be followed by a marked exacerbation of the entire process—a circumstance that often leads to the differentiation of the leukemic condition. In cases of leukemia with profound diminution of the number of leukocytes below 2,000 per cubic millimeter, necrotizing pharyngitis may simulate agranulocytosis. However, the presence of anemia, a hemorrhagic diathesis, and myeloblasts in the blood smears indicate the presence of leukemia rather than of agranulocytosis.

Lymphadenopathy.—Leukemia should be differentiated from the various conditions associated with localized or generalized lymphadenopathy. As a rule, the blood picture is sufficient to differentiate leukemia from Hodgkin's disease or lymphosarcoma. Occasionally a nonspecific lymphadenosis may persist for many months before a true leukemic blood picture is evident.

Infectious mononucleosis (lymphocytosis or monocytosis) may be mistaken for leukemia. The clinical course in this disease, however, is usually typical of a benign condition—fever, sore throat, absence of anemia (either clinical or hematologic), and transient lymphocytosis or monocytosis. The positive heterophile antibody reaction is often helpful in excluding leukemia.[1]

ATYPICAL LEUKEMIAS

Atypical leukemias are regarded as varieties of the well known forms or as rare cases. Chloroma, or chloroleukosarcoma, is one of the most interesting of these types. Essentially this is a myeloblastic leukemia with subperiosteal infiltrations that involve the orbit and cause exopthalmos. In the gross, the deposits have a typical green coloration.

In a small percentage of myeloid leukemias—usually of the chronic variety, although rarely of the acute—a generalized osteosclerosis of the bone marrow was observed. In some of our cases this was verified during life by means of a biopsy on the sternal bone marrow. Although no special blood changes characterize this particular form, most of our cases were leukopenic and myeloid. Cases of this type may occasionally be of long duration, eighteen years in one of our series.

Certain unusual variations of lymphoid leukemias may be mentioned, such as the splenic, medullary and plasma cell types. In the splenic variety the principal finding is a splenomegaly without a peripheral lymphadenopathy; it may resemble myeloid leukemia. In the medullary form the spleen and lymph nodes are not palpable. Sternal biopsy may be necessary to establish the underlying lymphoid metaplasia. Plasma cell leukemia is very rare,[2] only one case having been observed in our series.

There is also an extremely rare form of aleukemic leukemia in which the blood picture is nonleukemic but the lymph nodes (on biopsy) present the typical changes observed in chronic lymphatic leukemia.

Cases of splenomegaly have likewise been described in which the chief changes are marked leukocytosis with predominance of mature eosinophils[3] or of polymorphonuclear neutrophils.[4] While such cases are not usually classified among leukemias, their course and symptoms are somewhat parallel. A similar eosinophilia may be present in Hodgkin's disease.[5] The polynuclear cell leukemias, on the other hand, bear a close relationship to polycythemia. It is not unusual to find marked polynucleosis in the early or late stages of polycythemia. Subsidence of the polycythemia is not infrequently associated with the development of severe anemia, accompanied by either marked polynucleosis or myeloid leukemia (so-called erythroleukemia of Di Guglielmo[6]).

INCIDENCE

Age.—Leukemia may occur, with varying frequency, at any time during life. In acute myeloid leukemia the largest percentage occurred between the ages of 20 and 29; in the chronic variety the disease was encountered most frequently between the ages of 30 and 39. These observations agree with those of Minot, Buckman and Isaacs.[7] Chronic lymphoid leukemia was observed most frequently between the ages of 50 and 69.

Sex.—Our series revealed a predominance of the disease in males, 277 cases occurring in males and 178 cases in females, as shown in the table. In the two sexes the course of the disease was identical.

TREATMENT

Because of the limitation of knowledge concerning the etiology of leukemia, no specific remedy is known; the treatment therefore is essentially symptomatic. The ends to be accomplished are (1) improvement of the general condition and affording comfort by rest, diet and sedatives, and (2) increase of strength and efficiency by blood transfusions and roentgenotherapy.

The literature is replete with suggestions regarding effective medicinal measures. Among the many therapeutic substances that have been advocated are lead, sulphur, malarial inoculations, embryonic extracts and arsphenamine. Some of these measures (neoarsphenamine, malaria, fetal liver extract and raw fetal liver) have been employed in our series without satisfactory results.

Blood transfusions may be employed to combat the anemia and to deter the leukemic process. In some instances the anemia and hemorrhagic diathesis are improved after the first or second blood transfusion; subsequent transfusions may not be efficacious.

Transfusions frequently prolong the patient's life and may even induce a remission. This was strikingly demonstrated in the case of a child, aged 5 years, who, when first seen, had a severe anemia, with marked leukopenia with numerous myeloblasts. While under observation the patient became extremely pale and stuporous; a blood transfusion was given at that time, which resulted in so marked an improvement in the clinical condition that the child survived about one year after the onset of the disease.

Splenectomy in leukemia should be discouraged. As a rule the operation is fatal, although the patient may live about three months—rarely longer. In the quiescent stage of chronic myelogenous leukemia[8] the opera-

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7. Minot, G. R.; Buckman, T. E., and Isaacs, Raphael: Chronic Myelogenous Leukemia: Age Incidence, Duration and Benefit Derived from Irradiation, J. A. M. A. **82:** 1489 (May 10) 1924.

8. Giffin, H. Z.: Splenectomy Following Radium Treatment for Myelocytic Leukemia, M. Rec. **94:** 1020 (Dec. 14) 1918.

tion may be tolerated better. In two cases of leukopenic myeloid leukemia in our series, splenectomy was followed by a leukocythemic myeloid leukemia. Since leukemia is a disease of the entire hematopoietic system, it is unreasonable to expect any constant alteration in the general condition by removal of only one of the affected organs. In one case of choking of the splenic artery,[9] surgical procedure induced no improvement.

Conservatism should be the keynote of treatment of leukopenia. Iron and arsenic and liver extract are well tolerated and apparently have some immediate beneficial effect in maintaining the hemoglobin at a constant level. The anemia, however, tends to be progressive, and transfusions are then necessary to increase the hemoglobin and to improve the general condition. In these cases radiotherapy is of no value in reducing the size of the spleen. Furthermore, it is definitely contraindicated in marked leukopenia and in such cases may even be followed by untoward effects, such as secondary infection, necroses and hemorrhage.

The cases in which treatment is most availing are the chronic myelogenous and lymphatic leukemias of the leukocythemic variety. In these, the aim should be to reduce the number of white blood cells and to increase the hemoglobin and red blood count. Although this may not necessarily prolong life, it will usually increase efficiency and well being.

Reduction in the number of white blood cells or leukocytolysis, as suggested by Aubertin,[10] may be accomplished by several methods; namely, (1) chemical, (2) biologic or (3) physical.

1. *Chemical Method.*—(*a*) Arsenic: Prior to the extensive employment of roentgenotherapy, arsenic was frequently utilized in the treatment of leukemia. Its use was popularized by Bramwell,[11] who reported the first apparent remission in leukemia. Subsequently the enthusiasm for arsenic waned, but recently it has been advocated in larger doses by Forkner.[12] The best results with this drug are obtained in a few selected cases of chronic myelogenous leukemia. It has practically no influence in chronic lymphatic leukemia. To be effective, solution of potassium arsenite should be given in large quantities. The initial dosage of five drops three times a day should be gradually increased to ten drops three times a day. It may not produce improvement in symptoms. Occasionally it causes anorexia and loss in weight. It may be employed advantageously between courses of roentgen treatment.

(*b*) Benzene: Benzene, introduced by von Korányi [13] in the treatment of this condition, is poorly tolerated and rarely effective. Repeated use of this drug in some of our cases was followed by no response.

2. *Biologic Method.*—Leukocytolytic substances have been demonstrated in leukemia by Capps and Smith.[14] Lindström [15] was able to produce an antileukocytic serum from leukemic white blood cells. These investigators used such serum in cases of leukemia and obtained only transitory beneficial response.

3. *Physical Method.*—Radiotherapy: This is the most satisfactory form of treatment. There is no doubt that roentgenotherapy is of the greatest therapeutic value in chronic myeloid and chronic lymphoid leukemia. Since the first case was so treated by Senn[16] in 1903, it has been used with increasing and justifiable popularity. Radium, in the form of surface application or packs, is used only in the event that roentgenotherapy is not available, or in patients who cannot be moved from their homes.

When radiation therapy is to be employed, no definite plan of treatment can be outlined in advance. The marked radiosensitivity of leukemic tissue and the lability of the blood count necessitate extreme caution. In general, marked reactions should be avoided, and rapid regressions of leukemic deposits should not be sought. In our series of cases, fractional treatments of roentgenotherapy have been employed; i. e., high voltage therapy (from 180 to 200 kilovolts, 4 milliamperes, 0.5 mm. of copper plus 1 mm. of aluminum filter and the application of from 150 to 250 roentgens at each sitting). Under these conditions radiation is tolerated better, and fewer toxic reactions occur. This conforms with recent observations by McAlpin, Golden and Edsall.[17]

In our series the areas treated were the spleen in the myeloid cases, and palpable lymph nodes and spleen in the lymphoid cases. Occasionally the long bones or the flat bones were irradiated, but the response appeared to be somewhat slower. Duke [18] recommends treatment directed to the chest, and Dale [19] advises treatment of the entire body. Recently Craver and MacComb [20] published their results with total radiation over a protracted period (from ten days to two weeks) with apparently good effects. This plan is apparently useful in certain refractory cases of chronic lymphatic leukemia.

The effect of roentgen treatment is measured by the degree of symptomatic improvement. In favorable cases there is a rise in the hemoglobin and an increase in the red blood cells, a response that occurs more rapidly in myeloid cases. In lymphoid leukemias the improvement is not so marked. After the first series of roentgen treatments the blood picture may return to normal, particularly in chronic forms, and it may remain so for a variable period—from a few weeks to nine months. The symptomatic improvement, however, may be of longer duration. Additional treatment in our cases has proved less successful. In time patients become more resistant to the treatment and, as the disease progresses, do not tolerate it well. Toxic symptoms are not infrequent and may occur regardless of the area irradiated or of the amount of treatment. In cases of this type some improvement may be obtained by intravenous infusions of dextrose and saline solution or by blood transfusions.

In our experience, radiation therapy is justifiable and useful for acute leukemia. It was employed in twenty

9. Payr, E.: Ueber die Drosselung der Milzarterie mit Fascie bei uebergrossen oder nicht exterpierbaren Metzgeschwuelsten, Arch. f. klin. Chir. **167**: 512, 1931.
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20. Craver, L. F., and MacComb, W. S.: Irradiation of the Entire Body, New York State J. Med. **34**: 249 (March 15) 1934.

cases of our series. The spleen, spine and ribs were irradiated at intervals of three or four days with from 150 to 200 roentgens.[21] Some of these patients were given one or two blood transfusions to improve the anemia, prior to the roentgen treatment. In most of these no harm was done, but no improvement resulted. However, remissions were observed in three cases of acute leukemia. In two, remissions occurred, which lasted from four to nine months; the third was admitted to the hospital in a moribund state and was given solution of potassium arsenite, roentgenotherapy and a blood transfusion. This was followed by a remission. A relapse set in three months later. The treatment was repeated and again there was a remarkable improvement. Up to the time of writing (eleven months) the patient has apparently been in good health and has a normal blood picture. In our opinion, irradiation is useful in both acute and chronic cases.

Repeated blood counts should be done during a course of radiotherapy. During the administration of the first series, the fall of the white blood cells to 30,000 should serve as an indication for diminishing their quantity and frequency. In subsequent series, changes in the hemoglobin and in the number of red blood cells should be carefully noted. The presence of anemia is the signal to hospitalize and transfuse the patient before treatment is resumed. Knott and Watt [22] believe that the phagocytic power of the white blood cells is also an important criterion in connection with roentgen therapy. The loss of phagocytic power should serve as an indication for suspension of treatment; it should, however, be resumed on the return of normal phagocytic activity. It is therefore essential that leukemic cases be kept under the control not only of the radiologist but of the clinician and hematologist as well. This will prevent accidents that are associated with overdosage of radiation.

DURATION OF LIFE

In our series the duration of life in chronic leukemias was apparently somewhat modified by the inclusion of certain cases formerly regarded as acute. This may be attributed to the more extensive use of blood transfusions in treatment. In cases of chronic myeloid leukemia, 35 per cent of the patients apparently succumb in from four to twelve months; 45 per cent live from two to four years, and a few survive from five to eleven years. In the chronic lymphoid leukemias the duration of life is essentially the same. Most of the patients live from one to four years; a few live from five to fourteen years. In the chronic myeloid leukemias of the leukopenic type, most of the patients live for about one year; a few live longer, and one patient survived sixteen years. Although roentgen treatment does not prolong life, the patient's condition may be improved. It is apparent from our study that there is some justification in the belief that life in some of the acute forms of the disease may be prolonged perhaps to one year by blood transfusions.

SUMMARY

1. The relative occurrence of the three principal groups of leukemia apparently corresponds with the relative percentage of the various types of leukocytes in the circulating blood; namely, granulocytes, lymphocytes and monocytes.

2. The underlying systemic disorders present in all cases is essentially the same. An arbitrary division may be made according to the duration of the disease, acute or chronic, and also according to the number of white blood cells, into leukopenic and leukocythemic forms.

3. Symptomatology, although of great value in differentiating the disease, is unreliable for purposes of diagnosis. This should be based on the characteristic blood changes, which do not depend so much on the number of white blood cells as on the presence and persistence of specific types of cells, such as myelocytes, myeloblasts and relative and absolute lymphocytosis.

4. Confirmatory diagnosis of the more obscure varieties may be made by biopsy on the sternal bone marrow or on a lymph node.

5. The treatment of leukemia is largely symptomatic. Arsenic, transfusions and particularly roentgen irradiations are the chief means of inducing symptomatic improvement, remission or possibly prolongation of life.

51 East Ninetieth Street.

21. Roentgen units measured with back scattering.

22. Knott, F. A., and Watt, W. L.: Irradiation and Leukemias: Index to More Successful Treatment, Brit. M. J. **2**: 991 (Dec. 13) 1931.

CLASSIFICATION AND DIFFERENTIAL DIAGNOSIS OF THE ANEMIAS

RUSSELL L. HADEN, M.D.
CLEVELAND

An anemia is a decrease in the hemoglobin of the blood below the limit of normal. Since hemoglobin is contained only in the red blood cell, an anemia must result from quantitative or qualitative changes in the erythrocytes. The erythrocyte count may be low or the amount of hemoglobin per cell may be decreased. Red blood cells are always being formed and destroyed rapidly, so that the entire mass of cells is replaced every two to six weeks. An anemia results from a disturbance in the normal balance between destruction and regeneration of erythrocytes and hemoglobin. The red blood cells are formed primarily from the endothelial cells lining the capillary spaces in the bone marrow, especially of the flat bones. Successive stages in the growth of an erythrocyte from the endothelial cell include the megaloblast, erythroblast, normoblast, reticulocyte and mature erythrocyte. Red blood cells in the circulation do not all go through such developmental phases, since multiplication may take place at any immature level, although this is limited largely to the megaloblast and normoblast stages, points designated as critical in erythrocyte development by Sabin.[1]

The normal growth of red blood cells requires the elements such as protein, carbohydrate, mineral salts and vitamins, which are necessary for all cell growth. In addition to these nonspecific building stones, certain specific principles must be supplied. Two specific substances are known to be essential for normal erythrocyte development. These are (1) the specific antianemic principle of liver in the absence of which maturation from the megaloblastic stage is abnormal, and (2) iron, which is necessary for normal multiplication at the normoblastic stage and the normal filling of red cells with hemoglobin. Further study may reveal other factors essential to erythrocyte development, but so far

From the Cleveland Clinic.
Read before the Section on Radiology at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 14, 1934.

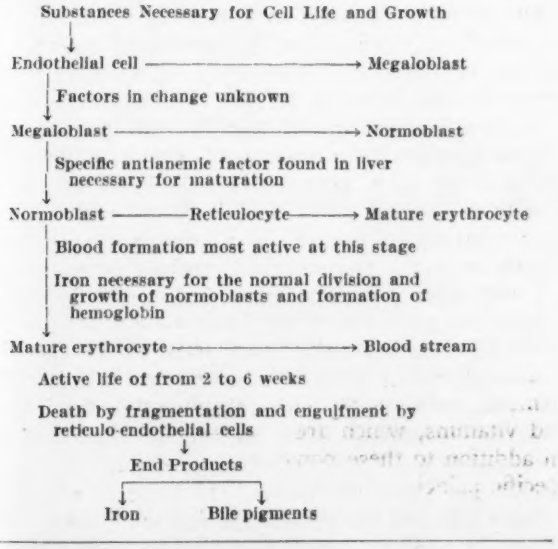
1. Sabin, F.: The Bone Marrow, Physiol. Rev. **9**: 191-244 (April) 1928.

these two are the only ones that have been proved. A deficiency in these specific elements leads at first to a qualitative defect and in time to a quantitative defect in blood formation with a resulting anemia. The growth of erythrocytes may be depressed apart from a lack of cell building material or a deficiency in specific elements by such general factors as lowered metabolism, malnutrition, exhaustion, toxemia, infection, malignancy and poisons or mechanical measures that inhibit normal cell growth in the marrow, such as infiltration of marrow by tumor or leukemia. The defect in blood formation when the function of the marrow is depressed is quantitative, although it is possible that there may be a qualitative factor also, since a poison, such as lead, may interfere with the utilization of one or both of the specific principles necessary for blood formation.

On the other hand, blood is constantly being destroyed at a rapid rate. The red cells fragment as they grow old, are picked up by the reticulo-endothelial cells, especially in the spleen, and are dissolved; the hemoglobin is set free, iron is split off and bile pigment is formed. Iron so released is utilized again and again. The life history of the red blood cell is illustrated diagrammatically in table 1.

The amount of bile pigment formed is the best measure of the rapidity and of the amount of erythrocyte destruction, since this is the normal end product of hemoglobin metabolism. Cells may also be lost mechanically by hemorrhage. A mechanical loss should be evident from the history or examination of the patient, or by tests for occult blood in the feces or stomach contents. With excessive hemolysis, clinical jaundice usually develops because bile pigments are being formed more rapidly than the liver can excrete them. In determining excessive loss of blood, the icterus index of

TABLE 1.—*Life History of the Erythrocyte*



the blood plasma is measured and thorough search for evidence of hemorrhage is made by means of the history and laboratory tests.

The most accurate indicator of the activity of erythrocyte regeneration in the marrow is the level of reticulocytes in the circulating blood, since these are young cells. The number of reticulocytes is the only measure of a quantitative increase in marrow activity other than the routine estimations of red cells and hemoglobin. There are other ways, however, to detect a qualitative change in the marrow, and especially to obtain evidence of a deficiency in the specific substances necessary for normal erythrocyte growth. These tests will be discussed later.

TABLE 2.—*Phase of Erythrocyte Metabolism*

I. Increased Blood Loss
  (a) Mechanical loss from acute hemorrhage as in:
    1. Trauma
    2. Peptic ulcer
    3. Uterine bleeding
    4. Disturbance in blood coagulation
  (b) Accelerated destruction as in:
    1. Chronic hemolytic icterus
    2. Hemolytic anemia due to infections and poisons

II. Decreased Blood Formation
  (a) Depression of marrow function in:
    1. Idiopathic aplastic anemia
    2. Cachexia, chronic intoxication, metabolic disturbances, poisons, radioactive substances, malignancy or infiltration of marrow by tumor or leukemia
  (b) Deficiency in specific substances necessary for normal red cell formation as:
    1. Deficiency in specific antianemic factor of liver leading to pernicious and other macrocytic anemias
    2. Deficiency in iron and perhaps other unknown substances necessary for hemoglobin formation—chronic hemorrhage, dietary deficiency of iron, and disturbance in utilization (idiopathic hypochromic and microcytic anemia)

An etiologic classification of the anemias from a clinical point of view may be made, as in table 2, depending on the phase of erythrocyte metabolism that is involved.

Laboratory aid is necessary, however, even for a clinical classification, and at the same time it provides data for hematologic classification of the anemia. The following laboratory information is required. The technic of the determinations may be found elsewhere.[2]

1. The red cell count.
2. Hematocrit reading.
3. Hemoglobin content.
4. The volume index (relative mean volume of the red cell).
5. The color index (relative mean hemoglobin content of the red cell).
6. The bile content of the blood plasma (icterus index).
7. The reticulocyte count.
8. The diameter of the red cells, qualitative changes in the stained cells, the number and type of leukocytes, the platelet count, and the coagulation and bleeding time, which may be of help in some cases.

On the basis of the size and hemoglobin content of the red cell as determined in such an examination, the anemias are classified from a hematologic standpoint as follows:

1. Normocytic and normochromic: volume index normal, color index normal.
2. Normocytic and hypochromic: volume index normal, color index low.
3. Macrocytic and hyperchromic: volume index increased, color index increased.
4. Macrocytic and normochromic: volume index increased, color index normal.
5. Macrocytic and hypochromic: volume index increased, color index low.
6. Microcytic and hypochromic: volume index low, color index low.

I have illustrated in figure 1 the mean size of the erythrocyte and its mean hemoglobin content in the six different types of anemia.

2. Haden, R. L.: The Technic of a Blood Examination, J. Lab. & Clin. Med. **17**: 843-859 (June) 1932.

The blood changes and the clinical classification may be correlated. In the anemias caused by acute hemorrhage, the number of cells and the quantity of hemoglobin are equally reduced, which indicates a reduction in the number of cells with those remaining normal in size and hemoglobin content. The anemia is normocytic and normochromic. In chronic hemorrhage or if the acute hemorrhage is sufficient to produce an iron deficiency, the picture is that of an iron deficiency anemia with a low volume index and color index. The icterus index is normal or reduced and the reticulocyte count is increased with normal marrow response.

In the presence of accelerated destruction of erythrocytes, the most characteristic clinical feature is the increased icterus index. If the process is chronic, the marrow is normally overactive, so there is often a great increase in reticulocytes with red marrow in the long bones. Since reticulocytes tend to be slightly larger than normal mature red cells, some increase in the size (volume index) and color may be found, although this is variable.

In all types of anemia resulting from decreased formation of erythrocytes, the reticulocyte count is low. In true idiopathic aplastic anemia and simple depression of marrow activity the effect on the bone marrow is usually purely quantitative, so fewer cells are produced by the marrow but those that are formed are normal. The color, volume and icterus indexes are within normal limits. Often the effect of lowered metabolism, malignancy, poisons and toxemias is to interfere with the formation, absorption or utilization of one or more of the specific principles necessary for normal blood formation. In such cases the blood takes on the characteristics of a specific deficiency anemia, although the actual cause is malignancy or some other abnormality.

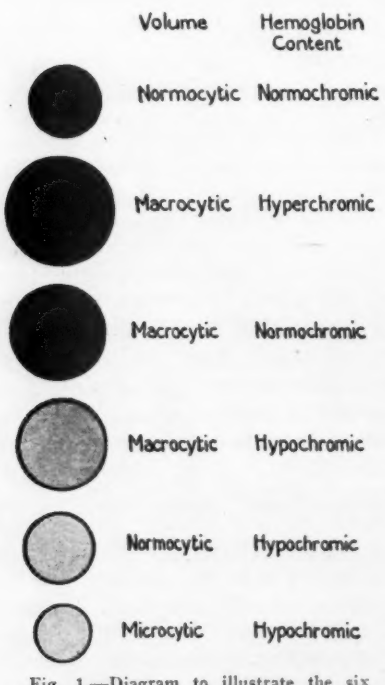


Fig. 1.—Diagram to illustrate the six groups of anemia on the basis of volume and hemoglobin content of the red cell.

In the specific deficiency anemias, the changes in the blood are characteristic. If the anemia is due to a deficiency in the specific antianemic factor of liver, the bone marrow is crowded with large cells which are unable to mature, and these die in situ in excessive numbers. The icterus index is high for this reason. The reticulocyte count is low because few cells get into the blood stream. Such cells as do get out are large and contain more hemoglobin than normally. Hence the volume and color indexes are high, as well as the icterus index, while the reticulocyte count is low. The disturbance in the marrow is at the megaloblast stage of red cell development. The characteristic anemia in pernicious anemia or related conditions is thus a macrocytic and hyperchronic anemia with high icterus index and low reticulocyte count.

With an iron deficiency there is first a decrease in hemoglobin; each cell carries less hemoglobin, so the color index is low since the total count normally remains high. Less hemoglobin is destroyed, so the icterus

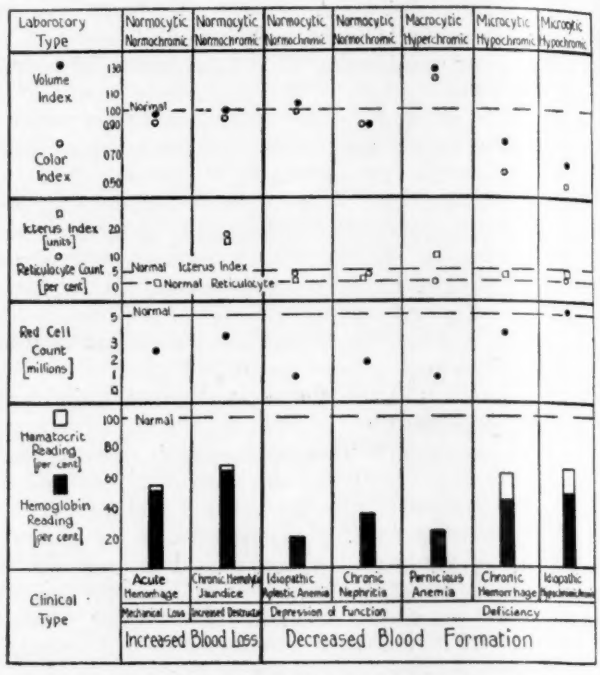


Fig. 2.—Typical laboratory observations in the various clinical groups of anemia.

index is lower than normal. Often the plasma is very clear. Almost the sole function of the red cell is to transport oxygen. With a prolonged iron deficiency and a great decrease in hemoglobin there is no need for cells of normal size, as the number may not change greatly. In such a deficiency, in time the mean size of the cell becomes smaller, although the hematocrit reading seldom becomes less than two thirds of normal. The characteristic anemia of an early or mild iron deficiency is a normocytic and hypochromic anemia with the icterus index 1 or less, and with little change in the reticulocytes; in a severe or chronic iron deficiency the characteristic anemia is microcytic and hypochromic, with a marked decrease in the icterus index.

The characteristic blood changes in the different clinical groups of anemia are shown in figure 2.

Not infrequently more than one factor is operative in the causation of an anemia, so the blood changes represent a summation of these characteristics for the different types of anemia. If there is a deficiency in both iron and the antianemic factor of liver, the microcytosis and the hypochromia characteristic of the iron deficiency may be neutralized by the macrocytosis and hyperchromia brought about by the deficiency in the antianemic factor of liver. The cell size and hemoglobin content may then be within normal limits. Malignant disease may depress the marrow, interfere with the utilization of a specific factor, and also cause hemorrhage. In such an instance there are three factors in the causation of the anemia. A careful study usually reveals all the factors.

COMMENT

If the blood is studied correctly and adequately, if a careful history is obtained and if the patient is examined completely, a case of anemia can almost always be correctly classified, both clinically and hematologically.

It is apparent that a correct diagnosis is of necessity prerequisite to the proper and adequate treatment of any patient with anemia. The factors in the production of anemia are relatively few, but frequently more than one factor may be operative. Thus, with adequate specific treatment of pernicious anemia an iron deficiency not infrequently develops, if the response to therapy is rapid. Likewise there may be a quantitative depression of bone marrow activity and also a qualitative deficiency caused by interference with the absorption or utilization of the specific principles necessary for the normal development of the erythrocyte. Infection is often a factor in the specific deficiency anemias. Thus, if an infection develops in a patient under treatment for pernicious anemia the dose of the antianemic factor of liver must be increased, showing that the infection interferes with the absorption or utilization of the specific principle.

In every case an abstract laboratory diagnosis from a hematologic standpoint must be made as well as a clinical classification based on the method of production of the anemia. All possible factors must be evaluated in planning treatment. To accomplish this the life history of the red cell must be kept adequately in mind, and the results of a complete blood examination must be known. The results of treatment are also determined by a careful blood study. In pernicious anemia the macrocytosis of the erythrocytes disappears with complete treatment; in an iron deficiency anemia, if enough iron is given, the cells become larger and are filled with hemoglobin. I have illustrated in figure 3 the close relation of treatment to the embryologic cycle. Each of the two specific methods of treatment of anemia (iron and liver and liver substitutes) bears a definite relation to a stage in the life history of the red cell. Thus the antianemic principle of liver acts at the megaloblast stage, while iron acts at the normoblast stage. Liver substitutes help only the macrocytic anemias, while iron is indicated only in the hypochromic anemias or in the macrocytic anemias when the color index is much lower than the volume index (low saturation index). Liver is an excellent food to supply nonspecific factors and hence may be tried in every type of anemia, although it probably has a specific effect only in macrocytic anemia.

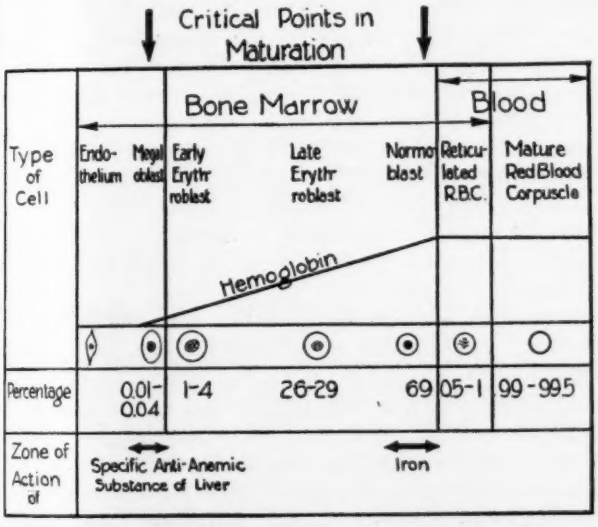


Fig. 3.—Embryologic cycle of the red cell of man (after Sabin) and the point of action of the specific principles necessary for normal red cell formation.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DR. KRACKE AND HORTENSE GRAVER, DRS. ROSENTHAL AND HARRIS, AND DR. HADEN

DR. CHARLES A. DOAN, Columbus, Ohio: In the Research Service at Ohio State University, seventy-five cases of leukemia have been studied during the last four years. Using the supravital criteria in addition to the usual methods for morphologic identification, we have made differential diagnostic studies of the types of cells involved in each case. The relative incidence of monocytic leukemia, in our series about 15 per cent, is surprising in view of the relative infrequency with which this type of leukemic dyscrasia has been reported in the past; 45 per cent were lymphatic and 40 per cent myeloid leukemia. Four postmortem studies in the group of eleven cases diagnosed as monocytic leukemia confirmed beyond question the underlying pathologic reticulum cell hyperplasia characteristic of this type. Some light has been thrown on the question of "mixed leukemia" in this study. In our experience to date, a "mixed leukemia" has been always a monocytic leukemia. The problem of aleukemic leukemia is being confused with agranulocytic angina. More than 80 per cent of the patients referred to us with a low white count—presumably specific granulopenic states—have not conformed to the Schultz syndrome, and many have shown the blood picture and pathologic changes of acute leukemia. We have found prognosis based on either physical or laboratory examination to be extremely hazardous in leukemic patients. A patient with less than 1,500 total white count and the majority of the cells myeloblasts lived for eight months without symptoms other than some weakness and an occasional lingual ulceration. Another patient was sent home with 400,000 total white count, 90 per cent of the cells being myeloblasts, and with a beginning gangrene of the face, and returned five months later in remission with 11,000 white cells but with the same qualitative differential. The making of a diagnosis of leukemia, especially in elderly individuals, with an elevation of the white count, the lymphocytes predominating, is not always easy. Therapy must be individualized. In the acute cases with "blast" cells predominating, x-rays and radium are usually contraindicated. In the more chronic cases of all three types of leukemia, small graduated doses of x-rays (starting with 100 roentgens) may be advantageously alternated with solution of potassium arsenite in successive courses of treatment. The development of a refractory tolerance may thus be overcome. We have been able to maintain both chronic and subacute manifestations of the disease in control for periods as long as from four to five years, and the patients in fairly good health, on such a regimen. The treatment available at the present time is, of course, only palliative and only temporarily if at all effective.

DR. VICTOR LEVINE, Chicago: Dr. Kracke has come to the conclusion that monocytic leukemia is a phase of myelogenous leukemia. This is in accordance with the view of Naegeli. Downey, however, has divided monocytic leukemia into two types, the Schilling type and the Naegeli type. By the Schilling type he means the true monocytic leukemia, with a preponderance of monocytic cells in the bone marrow and blood stream. By the Naegeli type is meant the monocytic phase of a myelogenous leukemia, a condition which I have observed at the Cook County Hospital and in which the myeloid cells predominate in the bone marrow despite the fact that the peripheral blood shows a majority of monocytic cells. To the types of acute leukemia mentioned there might be added two other types, megakaryocyte leukemia (which is quite rare) and stem cell leukemia. Many hematologists will not speak of a stem cell leukemia, but there are a certain number of acute leukemias in which the predominant cell is so immature that it is impossible

to classify it as a myeloblast, monoblast or lymphoblast, and it is accordingly called a stem cell. Rather than try to describe this type of cell, I will refer to an article by Dr. Forkner in the January 1934 issue of the *Archives of Internal Medicine*. He has one plate of excellent colored illustrations on which are the cells of a case diagnosed acute lymphatic leukemia. Forkner calls these white cells lymphocytes, but from their appearance they are certainly stem cells.

DR. W. EDWARD CHAMBERLAIN, Philadelphia: The radiologist must make a thorough study of his own cases of leukemia, in addition to studying the literature and attending such symposiums as this. In studying his own cases, I would urge him to make a practice of drawing up charts of blood counts based on absolute numbers of various cell types instead of percentage figures. For example, let us suppose that on a certain date the total white blood count is 100,000 and that 3 per cent of the cells are lymphocytes. Let us further suppose that ten days later the total white blood count is 30,000 and the lymphocyte count is 10 per cent. Actually the lymphocyte differential has increased from 3 per cent to 10 per cent, when expressed in percentages, while the absolute number of lymphocytes has remained exactly the same; namely, 3,000 cells. One should be primarily interested in the increase or decrease in total, and in the absolute numbers of various cell types. Charts or tables based on percentages do not give the lucid picture that can be obtained from charts or tables based on the absolute numbers of cell types.

DR. GEORGE J. KASTLIN, Pittsburgh: Within the last three months I have had under observation three cases of aleukemic leukemia of different types. One was a case that was first interpreted as an aplastic anemia, which continued for nine months. Approximately twenty-eight or thirty transfusions were given by one of my colleagues. This was a case that could not be definitely classified clinically as leukemia but at autopsy was definitely of an aleukemic type. The second case was also one in which confusion arose in diagnosis between aplastic anemia and leukemia. There was profuse hemorrhage from the nose and mouth, with a low platelet count but with no distortion in the bleeding or coagulation time. Although there were no abnormal lymphocytes in the blood stream, it appeared clinically as an aleukemic leukemia and was proved so at autopsy. The question came up whether roentgen treatment could be administered in the doses that are advocated by some in granulocytopenia or in other leukemias. The third type was a conventional type of leukemia with low white count but with a typical myelogenous blood picture. I present these three types, seeking information with regard to the possibility of roentgen therapy in addition to transfusion, the use of arsenic and supportive measures in general.

DR. NATHAN ROSENTHAL, New York: Dr. Doan's studies of living cells are important. Observations of the activity of cells after roentgen treatment may prove to be an important guide for continuation of roentgen treatment. Dr. Kastlin's cases of marked leukopenia with definite leukemic changes at the postmortem are interesting. In such cases the biopsy on the sternal bone marrow during life is an important aid in diagnosis. Roentgen treatment is contraindicated in such leukopenic states. It is not followed by good results and may lead to production of a greater leukemia and secondary septic complications.

Laboratory Doodads.—In the Epidemion, there are a considerable number of case histories, quite as thoroughly recorded, from day to day, as many of our modern ones, upon which diagnostic judgment can be based. In many instances, the observations of Hippocrates are so precise that we can often supply, from modern knowledge, the exact type of infection—not infrequently the micro-organism that must have been responsible for the individual conditions. In regard to many nonsurgical conditions Hippocrates did quite as well, we surmise, as will be possible for the modern general practitioner or "family medical adviser" who is so dear to the hearts of many of our reactionary contemporaries, and who, by a turn to medical muzzle loading, is to emancipate our profession from all the newfangled laboratory doodads.—Zinsser, Hans: Rats, Lice and History, Boston, Little, Brown & Co., 1935.

THE GASTRO-INTESTINAL MANIFESTATIONS OF UROLOGIC DISEASE

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The gastro-enterologist is frequently confronted with symptoms, referable to the abdomen, that cannot be explained on the basis of pathologic changes in the gastro-intestinal tract. In a number of cases, exhaustive study and resultant symptomatic management failed to relieve the symptoms. We therefore sought a possible explanation in the urinary tract, in spite of the fact that the urinary symptoms were either lacking or entirely in the background.

Metabolic disturbances associated with the nephritides frequently give rise to symptoms that are purely gastro-intestinal, but these are associated with corresponding blood changes with absorption of the toxic products. This group of cases is not considered in this presentation because the cases are so obviously renal in origin.

With these facts in mind we began to search for a possible explanation of this curious relationship. Reviewing the neurologic aspect, we note the interrelation of the nerve supply of the upper urinary tract, and the organs of digestion. Smith [1] has carefully shown this connection. He maintains that since both are supplied by the vagus and sympathetic nerves, any disturbance of the kidney may be reflected through the gastro-intestinal tract. The connecting link is through the celiac ganglion. Therefore it is reasonable to suppose that impulses originating abnormally in the urinary tract may produce gastro-intestinal symptoms without pathologic changes.

Numerous authors have also emphasized the close anatomic approximation of the kidneys with other abdominal viscera. This is especially true of the right kidney in relation to the gallbladder, duodenum, pancreas and ascending colon. However, in this group of cases the kidneys play the predominant rôle.

There are no pathognomonic signs or symptoms that would lead to a more accurate diagnosis. This is more a matter of exclusion, the possibility of such an interrelationship being kept in mind.

Frequently a careful history will reveal a urinary disturbance, particularly in women. They complain, in addition to their other symptoms, of a frequency and desire for urination, and a feeling of incompletely emptying the bladder. There may also be an urge which must be satisfied within a relatively short time. Difficulty in starting the stream is not uncommon. Smarting or burning may be present. In the male, similar but more pronounced urologic changes may cause the distress. From the gastro-intestinal standpoint the symptoms frequently simulate gallbladder disease, occasionally ulcer—especially duodenal—and many are treated for so-called colitis for a period of years, and in some, even operative intervention has been resorted to, with the extirpation of organs that show little or no change, with a persistence of complaints after surgery.

Read before the Section on Gastro-Enterology and Proctology at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 14, 1934.

1. Smith, E. C.: Canad. M. A. J. **28**: 281-283 (March) 1933.

We wish to emphasize a rather large group of cases, particularly in women, that has often escaped the attention of the internist, in which definite pathologic changes have been found in the urethra. Until of late, very little reference has been given in the literature to this group. In spite of these reports, the mention of urethral pathologic changes in females, particularly strictures, elicits a feeling that this condition is a rare one. This, however, is not true, for if the urethra would be examined by gynecologists and general practitioners as a routine during pelvic examinations, this entity would be found rather frequently.

Urologically, the changes are those of a definite stricture, usually in the anterior third of the urethra. Here one finds a definite narrowing, and catheterization is done with difficulty, if at all. Passage of a bougie reveals a definite "hang." The back pressure in these bladders results in the cystoscopic changes closely resembling those seen in prostatic hypertrophy—the degree depending on the duration of the stricture and the severity of the obstruction. Also, in the female, contractures may occur at the bladder neck, as well as diffuse polypoid formation.

We especially disregard at this time that group of cases known as ureteral strictures, recognizing that they may be a factor; but the increasing evidence points to the fact that they are not so common as previously mentioned by Hunner. That they occur there is no doubt, but are they as common as so often diagnosed?

In this connection we are reporting a group of thirty cases. For the sake of brevity we will review a few outstanding clinical pictures to emphasize this phase. In the cases herein cited the usual work up was given of a complete history and physical examination, complete blood count and differential, urine, stool, Wassermann and Kahn tests, basal metabolic rate, complete blood chemistry when indicated, and complete gastro-intestinal roentgen examination with or without a cholecystogram. In some cases a barium sulphate enema was given. Deviations from normal of these laboratory data will be cited if they have any significance, and, when omitted, it is assumed that they are within the limits of normal.

REPORT OF CASES

CASE 1.—Miss E. S. consulted us, March 1, 1928, for pain in the upper part of the abdomen. During the last twelve years she had had attacks of diffuse abdominal pain, coming on in the nature of attacks. Pain was rather severe and frequently radiated to the back on the right side. Attacks usually lasted from twenty-four to forty-eight hours and were accompanied by a temperature of 102 F. There had been no nausea or vomiting. A great deal of belching occurred, however. Six months before she had an attack of pain, accompanied by jaundice, which lasted ten days. She had previously been told that she had blood and pus in the urine. Cystoscopy was done at that time and a kidney infection was diagnosed. She was seen subsequently by another urologist, who confirmed this opinion, and during the last two years an appendectomy and cholecystectomy had been performed; following the latter operation there was slight improvement and then again a return of the symptoms. Analysis of the urine was negative on several examinations. Under suitable management no improvement was noted; urologic examination was done, and at this time a marked fibrous stricture in the last two thirds of the urethra was noted. A clear urine and normal bladder tolerance was observed. There were numerous areas of trabeculization over the wall of the bladder. On the floor of the bladder, and chiefly in the region of the right ureteral orifice, there was a marked bullous edema. The right ureteral orifice was embedded in this edema. The left orifice was essentially normal. Both ureters were catheterized unobstructed, and a clear urine was obtained from each side. A renal function indigocarmine test revealed a return in three minutes on the right and three and one-half minutes on the left side, in good concentration. She did not report again for another year and a half, at which time a recheck of the lower part of the urinary tract was done with similar observations. Subsequent dilations of the urethral stricture in this particular patient relieved her symptoms, and she has been well since.

CASE 2.—Mrs. E. J. S., aged 47, who consulted us, Aug. 2, 1927, gave a history of cholecystectomy and appendectomy nine months before. However, there was still a persistence of belching and a bitter taste in the mouth. Symptoms were only slightly and temporarily relieved by the operative intervention, and although she had been fairly comfortable for six months there was a definite return of her symptoms. A complete examination at this time revealed no pathologic changes to explain the recurrence of symptoms, and in this particular case there was no nocturia and frequency of urination. However, during the course of observation of a few months, a frequency did develop, and cystoscopic examination at that time revealed a firm fibrous stricture, 2.5 cm. from the outlet, with marked trabeculization of the bladder. Both ureteral orifices were normal, and there was moderate trigonal cystitis. Subsequent dilation of the urethra in this particular case completely relieved the gastro-intestinal symptoms, and the patient has been free from symptoms for the last five years.

Most internists are acquainted with the symptoms of nephroptosis and their attending phenomena. However, there is a certain group of cases in which the gastro-intestinal symptoms play the predominant rôle. In this connection we are reporting the following case:

CASE 3.—Mrs. R. F., aged 27, who consulted us, Aug. 29, 1923, complained of pain in the right side, nausea, lumbar pain, headache, loss of weight, and a tendency to perspire easily. For the past five years she had had pain in the right side, which was more or less constant. Appendectomy four years previously for this complaint failed to relieve her symptoms. The pain radiated up into the back and to the scapula. She felt nauseated when the pain was at its height; it never was referred to the pubic region and she never required opiates for relief. There had been some fulness and distention after meals. Noteworthy physical changes were a systolic murmur at the base of the heart, with a blood pressure of 142 systolic and 90 diastolic. There was some tenderness over the gallbladder region, and a mobile right kidney was observed. Subsequent gastro-intestinal roentgenograms revealed a prepyloric spasm on the lesser curvature side of the stomach which was distinctly tender. Otherwise the gastro-intestinal examination was negative. She was treated for a period of three years, off and on, on gastro-intestinal management, with improvement and relapses. In 1926, with the return of symptoms, a cholecystogram was made, and what was thought at that time to be a pathologic gallbladder was observed. On suitable management there was a return of her previous phenomena, and at this time it was thought wise to investigate the urinary tract; April 17, 1928, Dr. Kretschmer reported the following: Cystoscopic examination was negative, except for a freely movable right kidney, and a pyelogram showed the right kidney pelvis in normal position, with the patient lying flat on the table, and a prolapse of the pelvis down to the crest of the ilium when the patient stood up. The kidney could easily be displaced so that the pelvis was seen over the spine. After much discussion, and with some reluctance on the part of the urologist, it was finally decided to do a right nephropexy. This was subsequently done, and for the last six years the patient has been completely relieved of all of her symptoms and has had no recurrence of the gastro-intestinal manifestations.

Following this line of thought as to displacement, it is interesting to report the following case, illustrating pressure phenomena:

CASE 4.—Miss S. G., aged 43, who consulted us, Feb. 7, 1928, complained of pressure in the epigastrium and substernum. For the past three or four years the patient had had recurrent

pains in the epigastric and substernal regions, coming on during the day or night, never awakening her, and lasting for an hour or so. There was no particular relation to meals and no nausea, vomiting or jaundice. There was, however, excessive belching and passage of gas. Physical examination revealed frozen, irregular pupils, a definite systolic murmur in the aortic region, and a blood pressure of 168 systolic and 114 diastolic. There was definite fulness in the epigastrium, and there was a dull area displacing the normal stomach tympany. Examination of the rectum and vagina did not show any pelvic tumor mass. Repeated examinations of the urine showed no noteworthy changes, and the same was true of examination of the stool. The stomach acids were ten free and twenty total on the Ewald meal. The motor meal showed no evidence of retention. The Wassermann reaction and a previous spinal fluid examination were negative. The renal functional test gave a return of 35 per cent the first hour and 40 per cent at the end of the second hour. The blood sugar was 90 mg., and nonprotein nitrogen was 31 mg. Fluoroscopic examination of the chest and abdomen revealed no noteworthy changes of the chest; however, the cardiac end and the greater curvature side of the stomach were displaced to the right half of the abdomen. The duodenal bulb, when brought into view, was normal. Beneath the left side of the diaphragm there was a region similar in density to that seen on the right, occupied by the liver. Plates confirmed the fluoroscopic observation, showing a displaced stomach to the right and a depressed transverse colon into the pelvis. Cystoscopic examination revealed no noteworthy bladder changes. Indigocarmine injected intravenously appeared on the right side in two and one-half minutes in good concentration and on the left side in four minutes in fair concentration, and one-half minute later in excellent concentration. The left pyelogram showed a nephroptosis of the third degree. There was a slight degree of hydronephrosis. There was a tortuosity of the ureter, due to ptosis of the left kidney. There was no evidence of ureteral stricture, and the pelvis and calices were practically normal. It was thought that the ptosis of this kidney was due to extrarenal pressure. Subsequent laparotomy by Dr. H. M. Richter revealed a large solitary cyst of the upper pole of the left kidney. This was subsequently resected and the kidney left in situ. Following the removal of this cyst, the patient's gastro-intestinal symptoms completely subsided.

CASE 5.—Miss M. S., aged 29, who consulted us, July 15, 1926, complained of distress after eating, and vomiting. She had had an appendectomy sixteen years before. For the last five years she had had attacks of indigestion. These would come approximately every month and last for about two weeks; they were particularly distressing after the patient ate fat and greasy foods. Physical examination, other than tenderness over the gallbladder and epigastric regions, was essentially negative. Gastro-intestinal and gallbladder examinations revealed what appeared to be a pathologic gallbladder with stones. She was advised to have a cholecystectomy, and a single stone was found in the gallbladder. Following this a thyrotoxicosis developed and a subtotal thyroidectomy was done, and following the thyroidectomy the patient was fairly comfortable.

There was again a return of the previous gastro-intestinal manifestations, however, with some urinary distress. Vaginal examination revealed several large fibroids of the uterus. A cystoscopic examination revealed, particularly on the left side, an invaginated area of the bladder wall. This was about 5 cm. in diameter. There was distinct hyperemia of this area. The trigon and ureteral orifices were normal. Cystograms showed a deformity of the left lateral wall of the bladder, conforming to the cystoscopic picture. Following the removal of the fibroid uterus, the patient's urinary symptoms entirely disappeared, and she has been free from gastro-intestinal manifestations for the last two years.

Still more interesting are patients in whom one should readily suspect urologic manifestations that are entirely overshadowed by gastro-intestinal phenomena. In the male, urologic disease is frequent, and yet it is easily overlooked as the causative factor for the basis of the symptoms. This will be exemplified by the following cases:

CASE 6.—F. B., a man, aged 41, who consulted us, Nov. 13, 1931, complained of distention of the abdomen, belching and nervousness. For the last several years the patient had experienced a feeling of distention, especially across the upper part of the abdomen, coming on every day, usually noticed in the morning and late in the evening, and even while he was asleep. However, there was no relation to food taking. About a year before he had had a very severe pain under the right costal margin, which lasted for three or four weeks, not enough to incapacitate him and not associated with any vomiting or jaundice. There had been no loss of weight, and his past history was essentially negative. Physical examination revealed a markedly accentuated aortic tone, a blood pressure of 160 systolic and 116 diastolic, with definite tenderness over the gallbladder and sigmoid regions. The urine and stool examinations were essentially negative. Roentgenograms revealed numerous apical diseased teeth. The basal metabolic rate was 0 per cent, the blood sugar 88 mg., nonprotein nitrogen 23 mg., and a renal functional test 40 per cent at the end of the first hour and 30 per cent at the end of the second hour. Roentgen examination of the gastro-intestinal tract revealed no noteworthy changes of the stomach or duodenum. A cholecystogram revealed a gallbladder within the limits of normal. Because of the hypertension, it was thought that conservative gastro-intestinal management would be the procedure of choice. On what was presumed to be adequate gastro-intestinal therapy, however, his symptoms did not markedly decrease. A diurnal and nocturnal frequency then developed, associated with some slight difficulty on starting the stream. Rectal examination revealed a small, firm, irregular and nontender prostate. Both seminal vesicles were slightly enlarged. Prostatovesicular smear revealed from 20 to 30 pus cells per high power field. When an attempt was made to sound the urethra, a definite firm, linear stricture was encountered in the membranous portion of the urethra. Dilation of this stricture with adequate prostatic massage completely relieved the gastro-intestinal manifestations, and the patient has been comfortable since.

CASE 7.—C. A. E., a man, aged 41, consulted us, Feb. 28, 1927, for vague abdominal symptoms, associated with loss of weight, with no genito-urinary history. It was thought that he had a low grade disease of the gallbladder, and under subsequent management he seemed somewhat improved. However, some three or four years later pain developed in the left side, with a return of the abdominal manifestations, and he also noticed a frequency of urination. Because we felt that there might be a urologic condition in the background, this investigation was done instead of a gastro-intestinal examination. The external genitalia were essentially normal. Rectal examination revealed a smooth, nontender, bilaterally enlarged prostate. Cystoscopic examination revealed on the left lateral wall, just above the left ureteral orifice, an opening of a large diverticulum. This was about 1 cm. in diameter. Scattered throughout the bladder were numerous coarse trabeculae. The interureteral ridge was markedly hypertrophied. Examination of the bladder neck showed a definite hypertrophied median lobe. The lateral lobes did not show any marked changes. A subsequent intravenous pyelogram demonstrated that the left ureter took a tortuous course above the bladder and was pushed to the midline by the diverticulum. There was no evidence of hydronephrosis, and the removal of this diverticulum and a prostatic resection of the median lobe were advised. The urologist in his home town, however, felt that the diverticulum was all that should be removed, and there was some slight improvement following this operation. With the return of symptoms, the urologist was convinced that a resection of the prostate was indicated. After this was performed, the symptoms entirely disappeared, and the patient has been free from gastro-intestinal manifestations.

CASE 8.—S. L., a man, aged 47, who consulted us, Aug. 19, 1929, complained of abdominal distress, belching and distention. For the past two or more years the patient had had regular recurrent periods of abdominal distress, coming on about an hour after meals, especially after fried and greasy foods, associated with fulness and distention, and excessive belching. The

past history, other than a herniotomy fourteen years before and an appendectomy eleven years before, was essentially negative. Physical examination revealed no noteworthy manifestations. Examination of the urine and stool was negative. There were no noteworthy changes in the gastric content. Roentgen examination of the gastro-intestinal tract revealed a normal stomach and duodenum. A cholecystogram showed what appeared to be a pathologic gallbladder. Subsequent gastro-intestinal management made only little improvement in the patient. During the course of this observation, symptoms of frequent and nocturnal distress developed, and cystoscopic examination was thought advisable. At this time it revealed a residual bladder urine of 3 ounces (90 cc.), and normal bladder tolerance. A slight, coarse trabeculization on the posterior wall of the bladder, normal ureteral orifices, and a depressed trigon, with median lobe enlargement, which was definitely elevated and hypertrophied, with the lateral lobes within the limits of normal, were found. Following an adequate median lobe transurethral resection, the gastro-intestinal manifestations completely disappeared.

CASE 9.—S. L., a man, aged 24, complained of abdominal distress coming on some two hours after eating; this was associated with frequent nausea and vomiting. Gastro-intestinal examination was essentially negative. He was treated with ulcer management, with no improvement of symptoms. He had one severe attack of epigastric distress resembling that seen in a penetrating duodenal ulcer, and when seen by his internist surgical intervention was suggested for a penetrating and probably perforated duodenal ulcer. However, after the clinical picture was reviewed with the urologic manifestations, it was deemed advisable to investigate the urinary tract, with the result that a definitely enlarged and tender left seminal vesicle was found which on massage showed a large number of pus cells. After massage of the seminal vesicle there was an immediate abatement of the gastro-intestinal symptoms. During the last four years, while under observation, there has been a recurrence of the gastro-intestinal symptoms, which have not mended under medical management, and it is exceedingly noteworthy to find that with a repetition of urologic therapy there has been a complete remission of the symptoms.

COMMENT

It is evident from these various cases that urologic disease can and does cause gastro-intestinal symptoms. But how frequently is this etiologic factor overlooked? The more recent addition of intravenous pyelography to the armamentarium of diagnostic procedures has shed even greater light on this interesting phase of disease. We recognize the fact that intravenous pyelography has some shortcomings, but this should not detract from its helpfulness in leading to more accurate diagnoses in certain groups of cases.

The cooperation of the urologist with the internist has brought about a clearer understanding of many obscure pictures that heretofore have not been recognized, and, what is more important, that have been treated for many years symptomatically with no relief. Multiple operations are resorted to, and no improvement in the original picture is brought about. These patients are frequently maligned—treated as "neuro," or hypochondriacs—and are classified frequently in that all inclusive diagnosis "colitis," and yet are no better after the best of talent has had an opportunity to prove its skill.

CONCLUSIONS

With these facts in mind we feel justified in drawing the following conclusions:

1. The interrelationship of the nerve paths of the urinary and gastro-intestinal tract may explain this curious relationship of symptoms.

2. Women with urethral pathologic changes frequently show gastro-intestinal manifestations.

3. Pressure phenomena and displacement play a rôle in a certain group of cases.

4. Pathologic changes in the lower part of the urinary tract in the male may cause symptoms, particularly in middle aged men.

5. Finally, we do not offer this evidence as a panacea for all obscure gastro-intestinal complaints. However, we do feel that it is justifiable for the gastro-enterologist to become urologically minded enough to explain at times these many obscure clinical pictures. More hearty cooperation between the internist and the urologist should produce a more accurate diagnosis in a certain percentage of cases that do not react to recognized medical care.

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ABSTRACT OF DISCUSSION

DR. HARLOW BROOKS, New York: In my service are many patients who enter the hospital through the gastro-intestinal outpatient department, complaining of nausea and vomiting. These cases may include pretty nearly everything from hysteria to pregnancy. In a considerable number of cases we found that this was the result of urologic conditions and yet they were thrown on the internist and gastro-enterologist for diagnosis. In the first place there is traumatism of the kidney. Nausea and vomiting are the most outstanding signs of renal disease. Pyelitis causes nausea and vomiting with great frequency, and so do stones, renal abscess, the large solitary nephritic abscess or, still more frequently, the small cortical abscesses, which are so difficult of diagnosis even in the hands of the expert urologist. Tumors of the colon and stomach are mistaken frequently for tumors of the urinary tract, and vice versa. One should never forget the close anatomic relationship between the colon, the gallbladder and the stomach in their proximity to the kidney, or even to the urinary tract lower down. It is easy to assume, when one finds a case of apparent tumor of the stomach with the characteristic signs and symptoms of carcinoma that the stomach is the primary focus, but sometimes an inquisitive finger forced into the anus will show that the growth really originated in the prostate. Prostatic carcinoma frequently metastasizes early in the region of the colon or the stomach. Of course, that makes a great deal of difference, if one has in mind a subtotal gastrectomy. Gallbladder disease is so frequently mistaken for urinary disturbances that I hardly need to mention that we have found in the past month in the hospital several cases sent in as gallbladder disease but really due to septic nephritis. Renal tumor, pyelitis, cortical abscesses, solitary abscess, cysts of the kidney, quiet stone, proctitis, hemorrhoids and rectal disturbances of almost all sorts may simulate one another closely. Stricture, abscess and ulcerations of the sigmoid and rectum in particular are often secondary to prostatic disorder. So far as their symptomatic picture is concerned, prostatic abscess, carcinoma of the prostate and pelvic abscess are quite frequently associated and stricture of the rectum may be due to widespread pelvic abscess, possibly originating from an inflamed prostate. Three cases have recently entered the hospital under the diagnosis of typhoid. One who recalls the occasional difficulty of diagnosing this infection in the early stages will not be surprised to find that those three cases were instances of prostatic abscess. Then there is the frequent story of chronic appendicitis mistaken for an incarcerated stone in the ureter. I want to point out that the gastro-enterologist must be an internist with a particular equipment and skill and, as part of the internist's training, he must not forget that he must know a good deal of urology.

DR. CHARLES M. MCKENNA, Chicago: Many patients have been sent out of the doctor's office after a complete work up on gastro-intestinal disease as neurotic when in reality they were suffering from a pathologic condition of the urogenital tract. When one takes into consideration that the solar, aortic, renal, hypogastric, ovarian, prostatic and vaginal plexuses innervate both the gastro-intestinal tract and the urogenital tract, it becomes evident that any lesions of the urogenital tract

may produce symptoms in the gastro-intestinal tract. I would like to point out some conditions that I have observed in the Research Hospital in Chicago. Seminal vesicle disease will illustrate my point. Patients suffering with seminal vesicle disease may exhibit referred pain at McBurney's point. Excretion urography has been a great aid to the internist. Internists are now using more skiodan in eliciting gastro-intestinal disease than ever before.

DR. JULIUS FRIEDENWALD, Baltimore: Aside from renal disease, I have been especially interested in two urologic conditions giving rise to gastro-intestinal symptoms. The first is the presence of stone in the pelvis of the kidney, which may produce symptoms resembling duodenal ulcer or cholelithiasis, giving rise to pain several hours after meals, with signs of hyperacidity or reflex, and colicky pain in the upper part of the abdomen. The true condition may remain obscure unless a thorough investigation is made. The second is that associated with prostatic obstruction in which the digestion becomes markedly impaired and nausea, vomiting, eructations, abdominal pain, distention and emaciation become so prominent that the presence of carcinoma of the stomach may be suspected. In a number of instances of this type in which the patient had been previously under treatment for a considerable length of time for a supposed gastric cancer, the examination pointed directly to toxemia due to a prostatic hypertrophy. It is therefore of importance to bear in mind that, in individuals past middle life in whom gastro-intestinal symptoms are prominent, the prostate should always be examined.

DR. LEON BLOCH, Chicago: The occurrence of gastro-intestinal symptoms as the chief manifestations of urologic diseases up to recently has been stressed very little. This statement excludes of course conditions of severe colic with reflex nausea and vomiting and the patients in whom the symptoms are toxic manifestations of acute seminal vesiculitis or prostatitis. The symptoms group themselves under four types, gastroduodenal, cholecystic, colitic and appendiceal. The following is an example of the gastroduodenal type: Z. L. complained of regularly recurring distress after meals. A duodenal defect was found on fluoroscopy. He improved very little on medical treatment. Subsequently a urethral discharge appeared, which was treated for six months without avail. At this time a roentgenogram revealed a renal calculus. All the symptoms disappeared after removal of the stone. Recently a young doctor, with a similar gastric history, a duodenal defect and a negative urinalysis and who did not respond to medical treatment of ulcer, was found by intravenous pyelography to have distorted calices. He was entirely relieved of all his symptoms after the removal of a chronic hydronephrotic kidney. An example of the appendiceal type is a patient who was scheduled for an appendectomy. A rectal examination on the night preceding the date set for operation revealed a large distended seminal vesicle containing considerable amounts of pus. Massage cured the appendicitis. A patient treated for colitis for six months was found to have tuberculous seminal vesiculitis and tuberculosis of the left kidney, and later tuberculosis of an ankle. The diagnosis was made originally by finding tubercle bacilli in a specimen of urine passed in the office and later in urine obtained by renal catheterization. In those patients in whom the pain of renal colic is limited to the right hypochondriac and lumbar regions, biliary colic can be easily suspected. The shadow of the calculus may be found within the shadow of the gallbladder. Repeating the examination with the patient in an oblique position will reveal the presence of the calculus in the kidney. I believe, as the authors have shown, that the common innervation of the upper gastro-intestinal tract, the kidney and the upper part of the ureter through the celiac plexus by way of the preganglionic fibers from the lower dorsal spine and of the colon and rectum and the lower urinary tract through the sacral plexus will explain the causation of similar symptoms in both groups of cases.

DR. ANTON W. OELGOETZ, Columbus Ohio: Four years ago I developed an infection which subsequently proved to be duplicated kidneys on the left side, with infection of one. Both kidneys on the left were removed. About a year later I developed a dull, boring, constant pain over McBurney's point. After a thorough search I was advised to have the appendix removed. As time went on, I noticed the urinary stream gradually becoming smaller. Finally some one passed a catheter and found a stricture of the urethra. It was evidently just a mucous affair, which acted more as a valve, because the catheter passed through very easily. My symptoms abated immediately. Since then about every three or four months I have had a return of my trouble. We get out the wax catheters, pass a number 18 just once, and that cures my appendicitis.

DR. SIDNEY A. PORTIS, Chicago: Many clinical conditions have been omitted in the presentation of this subject. These omissions will be found in the complete publication of this paper. We particularly left out acute manifestations associated with fever, feeling that they did not belong to those chronic disorders for which gastro-enterologists are consulted and the clinical picture of which is so evident that the diagnosis should not be confusing. However, I am happy that Dr. McKenna reemphasized seminal vesicular disease with gastro-intestinal manifestations and reported improvement after adequate therapy. We have seen several of these cases and their clinical summary will be found in the paper. I am happy that Dr. Friedenwald emphasized the important symptom complex of hypertrophied prostate, particularly the fact that he feels that gastro-intestinal examinations are not complete without a rectal examination of the prostate and its surrounding tissues. I feel that the most important phase of this contribution is the emphasis on the frequency of urethral strictures in the female. This manifestation, so frequently overlooked and yet so easily found, should make one urologically minded. I am sure that many gastro-enterologists, as well as we, have overlooked this condition in the past, and that they would be amazed at the marked improvement in the gastro-intestinal symptoms of these patients following the simple dilation of a strictured urethra.

TWO CARDIAC COMPRESSION TRIADS

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Lesions of the pericardium are generally difficult problems in diagnosis. Auenbrugger, Corvisart and Laënnec early recognized these difficulties. Osler not infrequently lamented his failure to recognize a lesion of the pericardium and it would seem that these problems in diagnosis still exist. The chief reason for failure in the diagnosis of pericardial lesions is the fact that the physiologic concept of acute and chronic compression of the heart has not found the place in applied medicine that it deserves. Clinically, almost all of the intrapericardial lesions express themselves, if they express themselves at all, by producing either acute or chronic compression of the heart. Some lesions of the pericardium are entirely silent; they produce no clinical signs whatever and clinical recognition of these silent lesions is not to be expected.[1] However, the important group of lesions—important because treatment is effective—produces either acute or chronic compression of the heart. In this respect the intrapericardial lesion producing compression of the heart is exactly similar to the intracranial lesion producing either acute or chronic pressure on the brain. The intrapericardial lesion, like the intracranial lesion, produces clear and distinctive earmarks for recognition. In the case of the heart the earmarks for both acute

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1. In this group of silent lesions are the cases of adhesions between the normal parietal pericardium and the heart. Intrapericardial adhesions, per se, do not disturb the circulation. The circulation is disturbed if the parietal pericardium is thickened by the formation of scar tissue, but the presence or absence of adhesions in this condition is entirely incidental. The thickened parietal pericardium produces chronic compression of the heart. Extrapericardial adhesions per se do not disturb the circulation and these also are silent lesions. However, extrapericardial and intrapericardial adhesions combined are not silent. In this condition the work load of the heart is increased and hypertrophy takes place.

and chronic compression can be reduced to three essential components. These two triads for cardiac compression are presented because I believe they not only will be useful in diagnosis but also will focus attention on the mechanical and surgical aspects of these lesions, placing the treatment on a more rational basis.

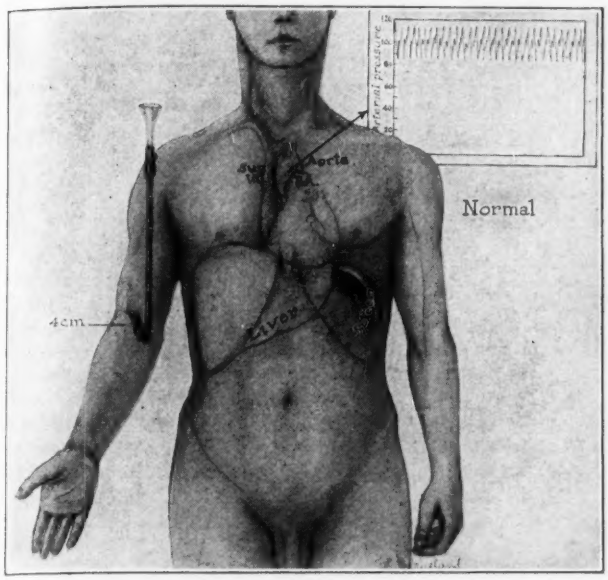

Fig. 1—Cardiac compression triads: For comparison, normal (fig. 1), acute (fig. 2) and chronic (fig. 3). The acute compression is produced by fluid in the pericardial cavity. Note collapse of venous gateway and distention of veins outside the pericardium. The ventricles are shrunken and the heart per se is smaller than normal. The parietal pericardium has not had time to dilate, nor has there been sufficient time for the liver to enlarge and for ascites to form. In the illustration for chronic compression of the heart the compression is produced by scar tissue. The heart is a small shrunken organ in contradistinction to cardiac dilatation. The veins dilate in response to the high venous pressure. The liver and spleen enlarge and ascites develops.

ACUTE CARDIAC COMPRESSION TRIAD

The acute cardiac compression triad (fig. 1) consists of (1) a falling arterial pressure, (2) a rising venous pressure and (3) a small quiet heart. All other clinical manifestations of acute compression are secondary to this triad. The great venous gateway to the heart (the intrapericardial segments of the venae cavae and the right auricle) is partially or completely collapsed. The ventricles are also smaller than normal. The heart, being partially collapsed, is able to make only a feeble excursion and there is no visible or palpable precordial pulsation. This restricted pulsation of the heart can be seen by fluoroscopic examination, but the condition of the patient is usually so critical that this examination cannot be carried out. If the compression is due to intrapericardial hemorrhage and develops acutely (within several hours), as little as 200 cc. of blood may be fatal. This collection of blood will produce a slight increase in the size of the cardiopericardial silhouette, but in acute compression the increase in size is frequently not demonstrable. There are no murmurs. The cardiac sounds are distant and muffled. A compression force of about 16 cm. of water acutely applied to the heart is fatal. The venous pressure rises in a manner parallel to the rise in the intrapericardial pressure. The tension in the venous system is an exact measurement of the abnormal tension exerted on the heart. In this respect the venous system may be considered as a physiologic tambour that can record compression forces exerted on the great venous gateway of the heart. As the amount of blood entering the heart is reduced because of the compression of the heart and the venous gateway, the amount of blood expelled by the heart is reduced by an equal amount. The failure of the arterial circulation produces anxiety, restlessness, pallor, cold moist skin, a weak or imperceptible pulse and finally unconsciousness. These are secondary manifestations to failure of the arterial circulation. The differentiation between acute cardiac compression and acute cardiac dilatation need not be discussed.

The most common cause of acute cardiac compression is intrapericardial hemorrhage. The most common causes of intrapericardial hemorrhage are penetrating wounds of the heart, rupture of a myocardial infarct, rupture of a cardiac contusion, rupture of the auricle, rupture of a coronary or aortic aneurysm and rupture of the base of a sclerotic aorta. Hemorrhage occurs also from neoplasms growing within the pericardium. It develops in scurvy, in tuberculosis of the pericardium and in purpura. Dr. Robert Dinsmore observed the development of the acute compression syndrome from mediastinal hemorrhage following the removal of a substernal goiter. Acute compression develops also when fluid other than blood forms rapidly in the pericardial cavity. The fluid may be sterile or infected. Acute cardiac compression may be produced also by gas pressure. The gas may arise from the lung (pressure pneumothorax, valvular pneumothorax) from the outside air or from a gas producing infection.

CHRONIC CARDIAC COMPRESSION TRIAD

The chronic cardiac compression triad (fig. 1) consists of (1) a high venous pressure, (2) ascites and (3) a small quiet heart. All other clinical manifestations of chronic compression are secondary to this

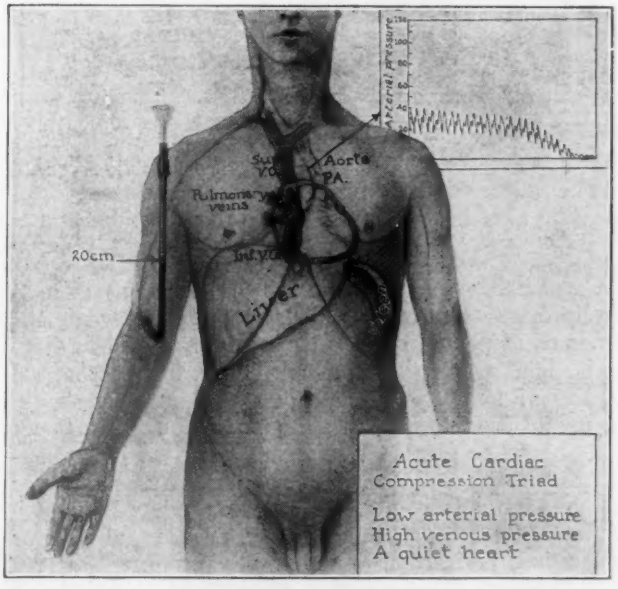

Fig. 2.—Acute cardiac compression triad.

triad. A much greater pressure on the heart and also on the great venous gateway to the heart can be tolerated if it develops slowly than if it develops rapidly. The intrapericardial pressure may rise to 38 cm. of water. Accordingly, the venous pressure rises an equal amount. The walls of the veins stretch in response to this pressure and the veins stand out like goose quills. Likewise the liver and spleen enlarge in response

to the high venous pressure. These organs sometimes become covered by a layer of fibrin and fibrous tissue. This icy coating is not produced by infection, as was formerly believed. Venous stasis without infection can produce it. The ascites may be marked and may be the most conspicuous feature of chronic cardiac compression. The heart is quiet, showing little if any precordial activity. The reduction in diastolic-systolic excursion of the heart is best demonstrated by fluoroscopic examination. There are no murmurs. The sounds are distant and faint. The heart itself is smaller than normal, but one must not confuse the cardiac silhouette with the cardiopericardial silhouette. If the heart is compressed by fluid over a long period of time, the pericardium stretches and the cardiopericardial silhouette is enormously enlarged but the heart per se is small and shrunken. A compressed heart cannot hypertrophy nor can it dilate.

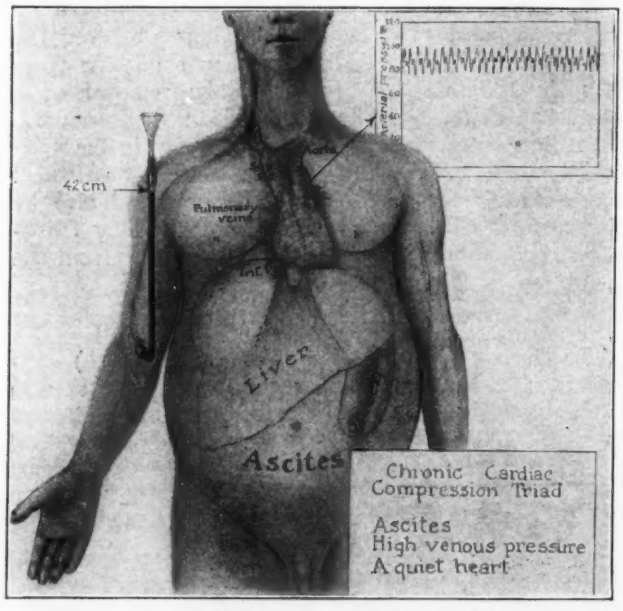

Fig. 3.—Chronic cardiac compression triad.

The various lesions producing chronic cardiac compression have been presented in a previous publication.[2]

TREATMENT

Cardiac compression should be regarded as diametrically opposite to cardiac dilatation. Not only are the triads of acute and chronic compression useful in diagnosis but, emphasizing as they do the mechanical aspects of two large groups of disorders, they should be useful in determining the nature of the treatment that should be given. The treatment of such mechanical disturbances obviously is surgical. Many of these compression syndromes, like those produced by stab wounds of the heart, tumors, scar, effusion, abscess or generalized pericardial infection, are recognized as surgical lesions. The question arises as to whether or not some of the lesions in the nonsurgical group can be placed in the surgical group. Perhaps some of the cases of spontaneous rupture of ventricles and auricles could be saved by operation. In a study of cardiac contusions, Dr. Ernest Bright and I[3] found that 20 per cent of those that went on to rupture seemed to be amenable to surgical repair, whereas operation was not carried out in a single case. The time is probably close at hand when the patient with a myocardial infarct or a myocardial contusion will be closely observed for the development of cardiac rupture, just as a patient with typhoid is watched for perforation of the bowel. Should rupture occur, the attempt to suture the bleeding point would be carried out immediately. Perhaps the time is not far distant when a prophylactic operation will be carried out for the purpose of strengthening the ventricle or the auricle so that the strain of intracardiac pressure can be tolerated. This could be done by placing a graft of pericardium over the weakened area in the heart. Undoubtedly the cases of acute and chronic compression of the heart offer opportunities for surgical intervention, and diagnosis is imperative. When the diagnosis is in doubt, exploratory pericardiotomy should be regarded as a justifiable procedure.

2. Beck, C. S., and Cushing, E. H.: Circulatory Stasis of Intrapericardial Origin: The Clinical and Surgical Aspects of the Pick Syndrome, J. A. M. A. **102**: 1543-1548 (May 12) 1934.

3. Bright, E. F., and Beck, C. S.: Nonpenetrating Wounds of the Heart: A Clinical and Experimental Study, Am. Heart J., to be published.

IS NEPHRECTOMY ALWAYS INDICATED FOLLOWING A DIAGNOSIS OF UNILATERAL RENAL TUBERCULOSIS?

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The possibility that renal tuberculosis, once it has reached the point at which diagnosis is beyond question, ever heals has received considerable discussion during the last fifteen years. In 1920 Chute[1] reviewed three cases that occurred in his practice; he considered that there were indications in occasional cases that tuberculous processes of the kidney healed. He pointed out how such a belief is necessary if one is to accept the hypothesis of the hematogenous route of the infection. He says:

> I believe we must assume that tubercle bacilli are brought in approximately equal numbers to both kidneys, that small cortical tuberculous infections are common and that far from going on to complete destruction of every kidney that is infected they are probably promptly stamped out in the greater majority of instances. The generous blood supply of the kidney allows it to overcome perhaps the greater number of infections while yet they are incipient.

After most careful experimental study, Lieberthal and von Huth[2] confirmed this observation and in the summary of their work state:

> The kidney has a peculiar immunity to hematogenous infection with tubercle bacilli because of its copious blood supply and the comparatively large caliber of its blood vessels. Tubercle bacilli which are circulating in the blood tend to pass through the circulation of the kidney to lodge in other organs. Infection of the kidney occurs only if local disturbances in the circulation or the presence of the tubercle bacilli in large masses which cause embolism (suspended in fat droplets, adherent to débris or agglutinated masses of bacilli) allow the organism to lodge in the renal tissue.

Read before the Section on Urology at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 14, 1934.

1. Chute, A. L.: Some Hypotheses Regarding Renal Tuberculosis, J. Urol. **5**: 431-438 (May) 1921.

2. Lieberthal, Frederick, and von Huth, Theodore: Tuberculous Bacilluria and Excretion Tuberculosis: Experimental Study, Surg., Gynec. & Obst. **55**: 440-448 (Oct.) 1932.

If such emboli do become lodged, the work of Medlar [3] would indicate that even then healing may occur if the original infection is not too extensive, a finding that has abundant clinical and experimental proof in a study by Harris [4] of forty-three adults and sixty-seven children having tuberculous lesions outside the urinary tract. In 37 per cent of the adults and in 13.8 per cent of the children a tuberculous bacilluria occurred, and yet in the majority of cases there were no urinary symptoms. Harris was interested to see whether he could demonstrate that any of the unexpected incidences of symptomless tuberculous bacilluria were of the secretory type. He collected urine daily for ten days from three patients who were free of symptoms referable to the urinary tract but who had tuberculosis elsewhere. He wrote:

> Each of these daily specimens produced tuberculosis when inoculated into guinea-pigs. In other words, tubercle bacilli were present in the urine every day though the patients were free from symptoms. Were their presence due to excretion from the blood stream by the kidney, an equally constant tuberculous septicemia must have been present. A tuberculous septicemia so constant and severe could hardly exist without the occurrence of miliary tuberculosis. None of the patients had at that time nor have they at the present any evidence of miliary tuberculosis. Blood cultures taken during the periods when urine was collected were free of tubercle bacilli. It seems certain, therefore, that the tubercle bacilli came from foci of renal tuberculosis.

In the majority of his cases, as stated, urinary symptoms were not present. The frequency with which urinary tuberculosis occurs without symptoms is not generally appreciated. In reviewing 345 cases in which stained smears of urine contained acid-fast bacilli at the Mayo Clinic, one of us (Bumpus) working with Thompson [5] found that twenty-eight patients (8 per cent) had no complaint referable to the urinary tract; from twenty-three of these patients tuberculous kidneys were removed. The other five also had renal tuberculosis but operation was thought inadvisable.

Bugbee,[6] in reporting similar cases, has observed that: "they lead one to believe that tuberculosis of the kidney probably exists much more frequently than is generally conceded, that a correct diagnosis of this type of case is often overlooked and that such a low grade tuberculous renal infection is self limiting in some cases."

Since a goodly proportion of Harris's patients without symptoms, but with bacilli of tuberculosis in the urine, ultimately became free of the organisms, as indicated both by examination of the stained smears and by the results of inoculation of guinea-pigs, it is not strange that in his conclusions he stated that "the initial renal lesions frequently heal, less frequently they steadily progress to complete destruction of the kidney and death of the patient."

In such symptomless cases, once the diagnosis of renal tuberculosis is made, the question arises as to the justification of nephrectomy. Henline [7] answers this by stating "We believe that the removal of a kidney from which tubercle bacilli have been repeatedly recovered without other clinical evidence is an error of judgment," and he goes on to say that "until further convincing proof to the contrary is forthcoming we feel that some types of tuberculosis of the kidney will heal under certain circumstances." Braasch [8] in a recent article observes that "the possibility of spontaneous recovery from renal tuberculosis must be recognized," while Thomas and Kinsella [9] conclude an article on the subject by stating, "We cannot understand why tubercle bacilli behave differently in the kidney than in other tissue in that a renal lesion is not supposed to heal."

With such an apparent unity of belief relative to the possibility of renal tuberculosis becoming arrested, the question naturally presents itself: When is nephrectomy indicated? Certainly the keynote of whatever form of treatment is adopted must place emphasis on the fact that there should be no hurry about operative removal of a tuberculous kidney. It is never an emergency procedure, and there can be no excuse for neglecting the most painstaking examination to be certain that the remaining kidney is not involved. For, if one accepts the hypothesis that renal tuberculosis in its preclinical stage is frequently bilateral, then the earlier one is able to discover its presence in one kidney the more chance there will be for it to be present in the opposite kidney, although undiagnosed. Certainly to perform a nephrectomy on a kidney from which the only evidence of tuberculous infection is the presence of organisms, with possibly a few red blood cells and an occasional leukocyte, and a few months later have the disease appear in the remaining kidney is, as Henline has stated, poor judgment. It would certainly seem probable, with the increase in accuracy of diagnosis and the frequent discovery of the disease in symptomless cases, that this unfortunate outcome should be assiduously avoided.

If one could follow all the patients with renal tuberculosis for a certain length of time, and particularly those in whom a proper hygienic regimen could be established, the incidence of healed lesions in the kidneys would probably be somewhat astonishing. We believe that the process of prolonged watchful waiting should, however, be insisted on in behalf of those patients in the adolescent period, as it has been agreed that younger patients are more prone to bilateral involvement than those of more advanced age and that nephrectomy should be performed only when definite cavitation exists. We believe that the coexistence of genital and renal tuberculosis gives preference to the former when operative procedure is indicated.

We have found that the result of the renal functional test is a most excellent guide in determining the time for operation. If this remains normal, or nearly so, the disease has probably not advanced to any great degree; but a marked decrease in the amount of dye excretion, which can be demonstrated by the intravenous urogram as well as by the color dyes, would appear to show the necessity of surgical intervention.

There is little danger of the infection of one kidney by the other except through a deposit of the tubercle bacilli into the blood stream. Lymphatic connection between the two is not constant, and since the lymphatics of the kidney are practically all of the efferent type, such a contingency may usually be dismissed.

3. Medlar, E. M.: The Pathogenesis of Renal Tuberculosis, Am. J. Surg. **7**: 605-606 (Nov.) 1929.
4. Harris, R. I.: Tuberculous Bacilluria: Its Incidence and Significance Amongst Patients Suffering from Surgical Tuberculosis, Brit. J. Surg. **16**: 464-484 (Jan.) 1929.
5. Bumpus, H. C. Jr., and Thompson, G. J.: Renal Tuberculosis; Changing Conceptions in the Decade 1920-1930, Am. J. Surg. **9**: 545-551 (Sept.) 1930.
6. Bugbee, H. G.: Two Cases Representing Unusual Types of Renal Tuberculosis, Tr. Am. A. Genito-Urinary Surg. **17**: 95-106, 1924.
7. Henline, R. B.: Renal Tuberculosis, Surg., Gynec. & Obst. **57**: 231-241 (Aug.) 1933.
8. Braasch, W. F., and de la Pena, Alfonso: Renal Tuberculosis, Pennsylvania M. J. **34**: 769 (Aug.) 1931.
9. Thomas, G. J., and Kinsella, T. J.: Renal Tuberculosis: Preliminary Report of a Clinical Research Problem, J. Urol. **17**: 395-405 (April) 1927.

The clinical experience of finding in the majority of cases far advanced renal tuberculosis in the removed kidney, while the disease is absent in the remaining kidney, would indicate that not until late in the disease does the infection again become bilateral.

If there is vesical irritation or other evidence of beginning tuberculous cystitis, the question of the advisability of nephrectomy no longer exists. It is mandatory and it seems almost superfluous to add that, in cases in which the disease has advanced sufficiently to show unmistakable roentgenographic changes in the pyelogram, no question of the desirability of nephrectomy can be entertained.

The case, however, that gives questionable roentgenographic evidence of the disease and in which the tuberculous infection has caused so little damage as to produce but a few pus cells in the urine together with the organisms seems to us to deserve sanatorium care and observation rather than immediate nephrectomy.

This advice was given to such a patient when first seen by one of us (Bumpus) at the Mayo Clinic:

CASE 1.—A man, aged 26, seen in October 1926, had been married six weeks before, shortly after which he noted an enlargement of the left testicle, followed in a week or two by a smaller swelling of the right. At first the enlargements were associated with considerable pain, but during the next three weeks this had subsided, although the swellings had increased. His general examination was negative except for an acute vesiculitis, prostatitis and bilateral epididymitis. The left epididymis, being fluctuant, was operated on and drained.

He was seen next two months later when a cystoscopic examination showed normal renal function from both kidneys, as determined by a phenolsulphonphthalein test. The urine from the right kidney was normal, while that from the left showed an occasional pus cell. A diagnosis of bilateral tuberculous epididymitis and prostatitis was made and guinea-pigs were inoculated with urine from both kidneys. The test with the urine from the right kidney was negative, and the one with the urine from the left was a failure. The patient was placed on heliotherapy with marked improvement. Jan. 16, 1927, after a month's interval, cystoscopy was again done and this time the stained specimen of urine from the left kidney showed acid-fast organisms to be present. The right kidney urine was normal. The patient being dissatisfied with his progress, and at his urgent solicitation, a bilateral epididymectomy was done February 18, and the diagnosis of tuberculous epididymitis was confirmed. There was no involvement of either testicle.

He was seen again in May 1927, and stated that a sinus had persisted on the left side following epididymectomy and that recently one had developed on the right side. Cystoscopic examination showed the renal function to be unchanged. The urine from the right kidney was normal, that from the left had an occasional pus cell. Two guinea-pigs were inoculated with urine from each kidney; those inoculated with urine from the left were failures; one of those inoculated with urine from the right kidney gave positive results and the other negative. A left pyelogram made at this time suggested evidence of cortical necrosis of the middle calix.

In July, approximately a month later, cystoscopic examination was repeated and a right pyelogram was made because of the finding of a positive reaction at the previous examination. The pyelogram, although blurred, seemed normal. Pigs were again inoculated with urine from each kidney; those inoculated with urine from the right kidney gave negative results and both pigs inoculated with urine from the left kidney gave positive results. Seven weeks later two more pigs were inoculated with urine from the left side; the test in one pig was a failure and in the other gave positive results.

The patient was not seen again for three years, during which time he spent a considerable period in Arizona under heliotherapy. When examined in July 1930, six pus cells to the field were found in the urine from the left kidney, and stained smears showed acid-fast organisms; guinea-pigs inoculated with the urine were positive. A pyelogram of the left kidney showed the calices normal with the exception of one of the minor upper calices, which appeared to be missing. The pelvis was normal and there was no dilatation of the ureter.

The pyelogram on the right side was negative, the urine was normal, and the two guinea-pigs inoculated with urine from this side gave negative results. The bladder urine contained tubercle bacilli.

His next examination was made nearly four years later, Jan. 15, 1934. He had no urinary complaints and his general examination was negative, although a roentgenogram of the chest showed a healed lesion in the left apex. The one taken at his first visit was negative. The bladder urine contained only an occasional pus cell and was negative for tubercle bacilli. The bladder was entirely normal on cystoscopic examination. The urine from the right kidney contained an occasional pus cell and that from the left three in the high power field. Cultures of both proved sterile and stains were negative. Guinea-pigs inoculated with urine from the left kidney on January 22 were examined on February 26 and both gave positive reactions for tuberculosis; those inoculated with urine from the right kidney gave negative reactions.

The left pyelogram showed a normal pelvis but still some apparent abbreviation of the upper minor calix.

The action of three patients observed by one of us (Woodruff) is interesting:

CASE 2.—A woman, aged 32, complained on admission of severe hematuria of three weeks' duration. The appearance of the blood was sudden, and the amount has been about the same since the beginning. There were no premonitory symptoms and no particular frequency except since the appearance of the hematuria. Cystoscopic examination revealed blood coming from the left ureteral orifice. A very decided stricture was found in the left ureter about 5 cm. beyond its orifice that resisted catheterization. With the aid of the terminal eye catheter, a successful ureteropyelogram was accomplished. The latter revealed no particular alteration in the pelvic outline except a slight fuzziness in the superior calix. Following the pyelogram the hematuria immediately ceased, and the subsequent cystoscopy showed an equal and normal function from each kidney. The tubercle bacillus was demonstrated in the bladder urine. The history of this patient repeated itself yearly over a period of nearly five years. After each cystoscopy and pyelogram the hematuria would immediately cease and not appear again until the lapse of from six to eight months. In the meantime, the stricture of the ureter had been successfully dilated, and at each cystoscopy the renal functional test appeared normal, the pyelogram showing the same fuzzy appearance in the upper portion of the superior calix. The tubercle bacillus was demonstrated in the urine from the left kidney at each examination. After four and three-fourth years of this type of observation, the patient appeared with a hematuria after a lapse of six months. The pyelogram still showed no difference in appearance from the one taken at the beginning, but the functional test was now grade 1 instead of grade 4, as formerly. The patient also stated that she has lost some weight. Nephrectomy was advised at this time but was refused. Four months later the patient returned, but without hematuria, and consented to an operation because she felt herself that she was going downhill. Removal of the kidney revealed a typical tuberculous infection in its upper pole. There were, however, no abscess cavities of any demonstrable size. The patient is alive and apparently well at this time, which is six years after the operation.

CASE 3.—A man, aged 34, presented a most desperate tuberculous condition. Examination revealed evident tuberculosis of the left epididymis, the right epididymis and testicle, and a frank cavernous pyonephrosis of the right kidney. There are many tubercular organisms in the urine, these organisms coming mostly from the right kidney. There are a few organisms demonstrated in the urine from the left kidney. The

right kidney was evidently practically destroyed by caseocavernous infiltration of its substance. This patient urged that heroic measures be taken in an endeavor to effect a cure; and, rather against the author's will, a right nephrectomy, a right epididymo-orchidectomy, and a left epididymectomy were performed. The patient was sent to the Loomis Sanitarium for treatment. After a stormy year there he purchased a house in Liberty and has lived there ever since. He has made several visits for observation during the past ten years, and in the last six of these no tubercle bacilli have been found in the urine.

CASE 4.—A woman, a nurse on whom bilateral renal tuberculosis had been clearly diagnosed, was given sanatorium treatment for one year, when it was found necessary to remove one kidney because of its evident destruction. Subsequently she was given sanatorium and rest treatment for a period of two years. At the end of that time no tubercle bacilli could be demonstrated in the urine. Four years after this she was found to have tuberculosis of the lumbar spine, and an operation was performed, a bone from her shin being transplanted to the diseased portion. This was followed by recovery, and at this time, which is ten years after the nephrectomy, she is apparently well, and there are no tubercle bacilli in the urine.

Droegemueller [10] has reported his observations on a tuberculous kidney in which the disease was so early that its only clinical manifestation was the appearance of tuberculosis in guinea-pigs after inoculation with urine from the kidney. He discovered practically no evidence of healing in the pelvic mucosa, while in the parenchymatous portion of the kidney signs that he interpreted as reparative processes were frequent. In conclusion he states:

> In considering healing of renal tuberculosis a distinction should be made between lesions inolving the pelvis or in communication with the pelvis and circumscribed parenchymal lesions not in communication with the pelvis. Circumscribed tuberculous parenchymal lesions not involving the pelvis may heal at times. It is questionable whether true healing ever occurs in lesions that involve the pelvis.

In contrast to Droegemueller's case, case 1 at no time showed any evidence of pelvic or ureteral involvement. Advice against nephrectomy until evidence of a more extensive lesion in the kidney became manifest seemed justified. Had the ureter or pelvis given evidence of involvement by inflammatory dilatation, a nephrectomy would have been urged. From a clinical standpoint, the disease seems arrested; only time of course can prove it permanently healed. In similar cases the keeping of the patient under observation rather than urging immediate nephrectomy would seem indicated, for every physician has observed how the clinical manifestation of diseases are undoubtedly changing. Glandular tuberculosis, common in our youth, is rarely seen today. The resistance of renal tissue to the tuberculosis bacilli may be undergoing a change; certainly its reaction in various parts of this continent appears different. For in the Northwest one sees many cases of calcification in the involved areas, not alone in the late cases but occasionally so early as to make the differential diagnosis from calculus difficult. Yet, in the Eastern clinics, calcified tuberculous kidneys are rarely seen, while in the Southern sections of the country the incidence of the disease appears so slow that at the last meeting of the Pan-American Medical Association held in Dallas the Southern urologists present all attested their surprise at the amount of interest manifested in the North about a pathologic process which they encountered so seldom.

10. Droegemueller, E. H.: Renal Tuberculosis: A Detailed Study Made Early in the Disease, S. Clin. North America **13**: 1007-1016 (Aug.) 1933.

SUMMARY

We believe there is sufficient laboratory evidence that tuberculous infection of the kidney actually heals. We believe there is great clinical evidence of this. Neither of these facts, however, prohibits reinfection.

We believe in adequate hygienic treatment of renal tuberculosis in its early stage, preferably in a sanatorium.

We believe that nephrectomy should be performed only when evidence of extension of the disease exists, when caseocavernous conditions can be demonstrated, or when the renal functional test has become markedly diminished.

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ABSTRACT OF DISCUSSION

DR. R. M. LECOMTE, Washington, D. C.: A clear distinction should be made between healing in renal tuberculosis and cure of the disease in the entire organ. Some evidence of healing may be found in practically every tuberculous kidney, but the occurrence of a complete cure may well be questioned. Renal tuberculosis, pathologically, may mean anything from a minute, solitary tubercle to an extensive process that has destroyed the whole parenchyma of the organ. In its surgical form it consists of an ulcerating or caseating lesion, characterized clinically by the presence of grouped pus and clumped bacilli in the urine and by evidence of destruction of the parenchyma, shown either by diminished function or by characteristic pyelographic changes in the suspected kidney. Unfortunately, not all the stages of this pathologic process are distinguishable clinically and there are certain errors necessarily associated with the manipulations required to make a bacteriologic diagnosis of the disease. These are soiling of the ureteral catheter specimens by the bladder contents, either by material carried up on the catheter or from an unsuspected vesico-ureteral reflux or by tuberculosis of the lower segment of a ureter the kidney of which is quite normal. Each of these possible errors makes it more likely that diagnosis of tuberculosis will be made in a normal kidney than that it will be missed in a diseased one. To established a cure in a surgical form, it would be necessary to show that the previously diseased kidney was capable of secreting a urine free from pus and bacilli and was negative both on roentgen study and on urography. I do not consider the pathologic studies of Dr. Medlar absolutely conclusive, because they were done on kidneys of people who died of pulmonary tuberculosis and the lesions studied differ materially from those encountered in the living operable subject. None of the clinical references describe in sufficient detail a case that would answer the criteria of cure just noted, and all the apparent cures might easily be explained on the basis of more or less prolonged remissions or possible technical errors in the diagnosis. As Dr. Thomas's work has been reported, it can be subjected to criticism, for no matter how skilful and careful a cystoscopist may be, he is in constant danger of having the ureteral catheter soiled in one way or another. There is considerable question in my mind as to whether Dr. Bumpus's patient might not have been benefited more by a left nephrectomy in 1927 than by the years of general treatment that he received, and whether he might not be benefited by it now or eventually come to it. I believe that Dr. Woodruff cured his three cases by removing a unilateral tuberculous kidney, although the clinical examination gave rather confusing data as to the freedom from infection of the remaining kidney in the second and third cases. I rather deplore the tendency to get away from surgery in the early unilateral cases, because it is in them that the best results are obtained.

DR. J. C. PENNINGTON, Nashville, Tenn.: I have been urologist to the Davidson County Tuberculosis Hospital for eight years. It has a capacity of 300 beds and is always full. The interns have many times demonstrated tubercle bacilli in the urine of patients free from urinary symptoms. We have had only one case in the eight years which required surgery for tuberculosis of any part of the genito-urinary tract. This patient was a man who had tuberculosis of each epididymis

and each seminal vesicle. It has been remarkable how few tuberculous lesions of the genito-urinary tract were found in cases of pulmonary tuberculosis. Whether or not the finding of bacilli in symptomless cases means that there is active tuberculosis in the urinary tract, I am unable to say. It has been our policy to leave such cases alone and let them continue with their treatment of pulmonary tuberculosis.

DR. HUGH H. YOUNG, Baltimore: This is a subject of such great importance that we should consider it thoroughly before giving forth to the medical world that the Section on Urology even considers the advisability of not carrying out nephrectomy in the presence of an early tuberculous lesion on one side. The diagnosis is difficult. Tubercle bacilli are not always to be found in the urine, nor do guinea-pigs always die from urine injections from a definite renal tuberculosis. I remember the case of a young man in whom tubercule bacilli were found elsewhere in the urine from the right kidney. When seen by me and my associates two months later, the urine was absolutely negative. Numerous studies and animal inoculations showed no tubercle bacilli, and ureteral catheterization was also negative. Inoculated guinea-pigs were killed from two to three months later and were negative. About six months later the patient came down with a right epididymitis, the right seminal vesicle was involved, and the diagnosis of tuberculosis was positive. I carried out right epididymectomy, vasectomy and seminal vesiculectomy, but as the prostate seemed not to be involved, and the right epididymis and vesicle appeared normal, I did not remove them. Seven years later the patient returned with cloudy urine, and tubercle bacilli were obtained from the right kidney. Nephrectomy and partial ureterectomy were performed. For five years thereafter the patient was apparently well. The urine was normal. In February 1926 (twelve years after the first partial seminal tract operation) the patient returned with tuberculosis of the right epididymis. It was not possible to recognize tuberculosis of the prostate or remaining vesicle. He lived in Colorado and insisted on taking heliotherapy. Five years later he died of pulmonary tuberculosis, complicated by pneumonia, eighteen years after the initial lesion in the kidney had been discovered. This case demonstrates conclusively that it is often difficult to find tubercle bacilli in an early renal lesion. (After eight years the tuberculous area in the kidney removed by me was still small.) This case also shows the importance of removing both vesicles, both vasa deferentia and epididymides, and also the lateral lobes of the prostate when the radical operation is carried out. The serious error was in failing to recognize the very early tuberculosis in the right kidney. Now intravenous and retrograde pyelography would have prevented such a mistake. The case is an argument against the nonoperative treatment of even slight renal tuberculosis. After a careful recent study of all our cases of tuberculosis of the genito-urinary tract, I am absolutely convinced not only that early nephrectomy and partial ureterectomy are desirable but that wherever tuberculosis has involved an epididymis there is practically absolute certainty that the vasa, vesicles and prostate are also involved, and that an early bilateral radical operation on the seminal tract is indicated as soon as the patient has recovered from the nephrectomy.

DR. H. C. BUMPUS JR., Pasadena, Calif.: Dr. Woodruff and I wished to emphasize the point that with the diagnosis of renal tuberculosis being made increasingly early one must be absolutely certain that only one kidney is infected. I have seen many nephrectomies performed when the microscopic study of the urine from the remaining kidney was negative only to have the guinea-pig reported positive a few weeks later. Such patients develop, or had one better say continue with, the infection in the only remaining kidney. That is why we asserted that nephrectomy for tuberculosis is never an emergency procedure. Dr. LeComte referred to the case I reported. A nephrectomy was done last week. The patient's urine was free from pus, he had no roentgenographic evidence of tuberculosis and was free from symptoms, and only the guinea-pigs were positive. After eight years the kidney showed, as in Dr. Young's case, a very limited single lesion a few millimeters in diameter, a finding that further emphasizes, I believe, that nephrectomy for tuberculosis can safely await the most exacting examination. It is never an emergency procedure.

QUARTZ LIGHT THERAPY IN UROGENITAL TUBERCULOSIS

STANLEY L. WANG, M.D.
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Quartz light therapy has been included in the treatment of urogenital tuberculosis for the past eight years. It is not used alone but is a part of the general plan of treatment. The general plan is to remove the active lesions by surgery, so far as this may be done advantageously, and then to follow the surgery by a long course of after care. The after care, as is also the treatment of inoperable patients, is based on the traditional method of treating tuberculosis; namely, rest, fresh air and proper diet. To these are added other measures and procedures that have been found useful and that seem indicated in the various kinds of patients. Among the useful measures is quartz light therapy.

The air cooled mercury vapor quartz lamps of both the older and the newer types have been employed for the local irradiation of sinuses and for general irradiations over the regions of the kidneys and bladder. Formerly water cooled mercury vapor quartz lamps were used to some extent for local treatment. More recently, about a year and a half ago, irradiation of the interior of the bladder of patients suffering from bladder tuberculosis was begun with a lamp that is somewhat of a variant from the usual mercury vapor quartz lamp.

TABLE 1.—*Irradiation of Wounds and Sinuses*

	Number of Patients	Number of Months Treated with Quartz Lamps Before Healing	Average, Months
Postnephrectomy	41	3, 4, 2, 1, 10, 1, 4, 7, 9, 6, 4, 1, 1, 4, 6, 6, 2, ¾, ¾, 6, 7, 5, 18, 4, ½, 12, 7, ¾, 9, 1, ¾, 6, 1½, 5, 8, 2, 8	4.2
Postepididymectomy	18	8, 4, 1, 2, 2, 1, 3, 1, 7, 5, 2, 1½, 2, 8, 14, 2, ½, 3	3.7
Inoperable epididymal	9	2, 4, 18, 2, 2, 8, 6, 18, 4	7.1
Postorchidectomy	1	1	
Inoperable testicle	1	36	
Postinguinal adenectomy	2	8, 1	
Postseminal vesiculectomy	1	12	
Total	73		

The air cooled lamps have been very useful in the treatment of wounds and sinuses. Sinuses following the surgery of urogenital tuberculosis are of considerable importance, for they occur in a more or less certain percentage of patients. The sinuses usually ensue within a few weeks after the operative treatment, when as a result of abscess formation the incision line breaks open partially or completely. When the entire incision or a large part is involved, a deep wound is formed, which discharges pus profusely. The postoperative recovery is delayed and there is a long period of inconvenience as the result of the frequent dressing of the wound. Previous to the advent of quartz light therapy postoperative sinuses, particularly following nephrectomy for tuberculosis, had a long standing reputation for persistence, and there were numerous reports that drainage often continued for three years and occasionally longer. Besides the patients with sinuses following surgery there were other patients with sinuses

From the Department of Urology (James Buchanan Brady Foundation) New York Hospital.

Read before the Section on Urology at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 14, 1934.

from tuberculosis of the epididymides or testicles who were deemed inoperable or who refused operation.

Table 1 gives the healing of the wounds and sinuses in postoperative and inoperable cases. The local treatment was irradiation with the air cooled mercury vapor quartz lamps and in a few instances it was alternated with heliotherapy. The treatments were given twice each week beginning with a one minute exposure at a distance of 20 inches from the wound. The time was gradually increased to seven minutes and the distance then slowly shortened to 15 inches. With the older lamps the treatments were begun at three minutes at a distance of 20 inches and gradually changed to ten minutes exposure at 8 inches. After these settings had been reached the treatments were continued until the wounds healed, with occasional variation according to the skin reactions. The progress seemed most satisfactory when there was no other treatment of the wound than cleansing the edges with dilute alcohol and applying the dry gauze dressings. There seemed to be slowness in the healing when there had been a long interval between the development of the sinus and the institution of the treatment; also when the patients did not come for treatment regularly. One in the series had nephrectomy at another hospital four years previously. The postoperative sinus that had persisted during the four years healed after a long course of the irradiations. Two others had retro-ureteral reflux of urine from the bladder into the postnephrectomy sinuses, but it seemed to cause no delay in the healing. In three, small sinuses developed in the postnephrectomy scars several months after the first sinus healed; these soon closed, however. In the cases of tuberculosis of the epididymides that were treated surgically, healing occurred on the average in about half the time (3.7 months) necessary for healing of the group in which operation was refused or which were deemed inoperable (7.1 months).

There were, in addition to the patients in table 1, one with a postnephrectomy sinus who discontinued treatment after a few months with her wound still draining. Five with postepididymectomy sinuses stopped their treatment after five, four, seventeen, twenty-four and twelve months. Two with postseminal vesiculectomy sinuses were unhealed after twelve and fourteen months. Two with renal tuberculosis had urethral sinuses following urethrotomy for stricture which were still draining after thirty and four months.

On the whole the results seem to indicate that the quartz lamps are of value in the treatment of wounds and sinuses in this class of case.

Irradiations with air cooled lamps over the regions of the kidneys and bladder are given twice each week in all inoperable and postoperative cases presenting tuberculosis of those organs. Cases of epididymal or testicular tuberculosis are treated in a like manner. The treatments are begun gradually and the lamps are brought closer, depending on the skin reactions. Short exposures of seven or eight minutes at from 12 to 15 inches have worked out well. The heat of the lamps seems to have a good influence. In table 2 are the results of treatment of 156 cases, which included this method of quartz light therapy.

TABLE 2.—*Results of Treatment that Included Quartz Light Therapy*

	Apparently Cured	Improved	Unimproved	Died	Total
Postnephrectomy	16	39	15	5	75
Inoperable renal	..	28	8	3	39
Postepididymectomy	14	5	1	1	21
Postseminal vesiculectomy	..	1	1	1	3
Postorchideetomy	1	..	..	..	1
Postinguinal adenectomy	2	..	..	..	2
Posturethrotomy	..	..	2	..	2
Inoperable epididymitis	10	..	2	..	12
Inoperable orchitis	1	..	..	..	1
Totals	44	73	29	10	156

There is no way of appraising the value of the procedure. It is further made difficult by the fact that it is only one measure in a general regimen of care. The patients as a general rule, however, insist that it is of benefit. No harmful effects were noted, even though in some instances the irradiations were continued for as long as three or four years. The impression has been gained that this part of the regimen is worth while.

Irradiation of the interior of the bladder of patients with bladder tuberculosis has been carried on for more than a year and a half. It was begun soon after Caulk and Ewerhardt [1] reported the treatment of a case of bladder tuberculosis by intrabladder irradiation with a special quartz lamp arranged so as also to introduce air. The lamp I have used differs mechanically and in its emission from the air cooled mercury vapor quartz lamps. Mechanically it is of the high voltage discharge mercury vapor type and operates at a temperature sufficiently low that the heat of the electrode is barely felt on the skin or mucosa. The difference in the emission of the rays is clearly shown by the comparison of the two spectrums. The rays from the high voltage discharge mercury vapor lamp varies from the other in that they are more of a monochromatic nature, since about 90 per cent are concentrated in the wavelength at 2,537 angstrom units.

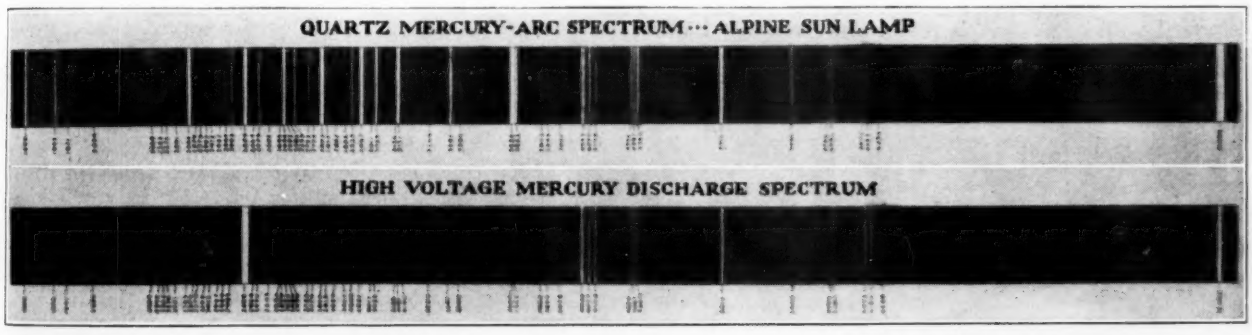

Fig. 1.—Comparison of the two spectrums: above, quartz mercury-arc spectrum, Alpine Sun Lamp; below, high voltage mercury discharge spectrum.

1. Caulk, J. R., and Ewerhardt, F. H.: Direct Internal Irradiation of Ultraviolet to the Bladder, Arch. Phys. Therapy **13**: 325-327 (June) 1932.

The intrabladder applicator is of fused quartz built according to the design by Dr. Oswald S. Lowsley and myself. It is about the same shape as a Brown-Buerger cystoscope and approximately 24 French in diameter. There is an extra tube built into the fused quartz with an opening near the tip of the applicator and with an extension at the other end for the attachment of a rubber tube. The extra tube is for the purpose of catheterizing the bladder, and after it is

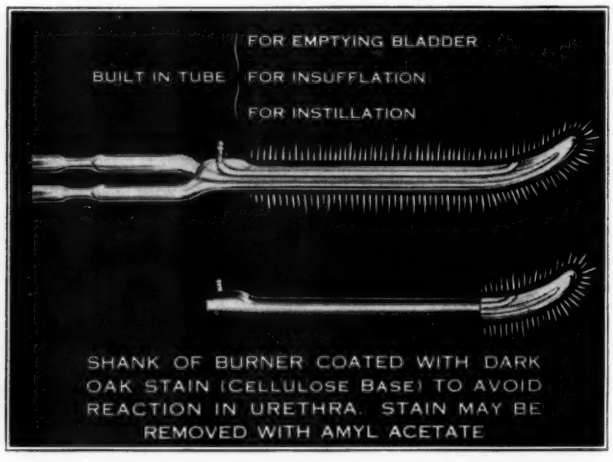
BUILT IN TUBE
FOR EMPTYING BLADDER
FOR INSUFFLATION
FOR INSTILLATION
SHANK OF BURNER COATED WITH DARK OAK STAIN (CELLULOSE BASE) TO AVOID REACTION IN URETHRA. STAIN MAY BE REMOVED WITH AMYL ACETATE

Fig. 2.—Appearance of applicator.

emptied of urine air is insufflated with a syringe to distend the bladder slightly before irradiation. Following the treatment an instillation can be made through the tube if desired. The applicator, with the exception of the part at the distal end, which protrudes into the bladder, is painted with a dark oak stain made with a cellulose base to screen the rays from the urethra. When urethral irradiation is desired, the stain is easily removed with amyl acetate and can be reapplied when needed.

The device has been found to be practical for irradiating the interior of the bladder. The applicator passes easily through the urethra into the bladder with little discomfort to the patient. The bladder is emptied of urine, slightly distended with air and irradiated, and the air is permitted to escape from the bladder at one operation and in a very short time.

TABLE 3.—*Results of Intrabladder Irradiations*

	Improvement			Unimproved
	Marked	Moderate	Slight	
Postnephrectomy	2	2	6	4
Inoperable renal	..	..	1	..
Total number of patients treated		15		

The intrabladder irradiations were given once each week. The time varied from five to twenty seconds, depending on the local reaction. Longer time and more frequent treatments seemed to be unsatisfactory. A small amount of liquid petrolatum, which permits the passage of the rays, was used on the tip of the applicator for lubrication. Although no mishap has yet occurred, it was thought best to insufflate only a little air, and an opportunity was given for it to pass out through the extra tube in the applicator after the treatment. The instrument was sterilized in the formaldehyde cabinet and when several patients were treated it was sterilized between applications by immersion of the applicator in 1:1,000 mercuric oxycyanide solution for ten minutes.

Fifteen patients were treated as shown in table 3. The results were encouraging. This group presented a somewhat severe test, as all the patients had old bladder lesions that had not responded to other measures. Several had badly crippled bladder function due to extensive disease of the cystic wall, which had diminished the capacity and rendered the organ sensitive to small quantities of urine. The improvement, when it occurred, was evidenced by a lessening of the sensitivity and a decrease in the urinary frequency. Usually the intensity of the local symptoms was increased for from twelve to twenty-four hours following the treatment. One patient with a rather large ulcer showed a marked decrease in the size of the ulcer as seen through the cystoscope, and the urine became free from acid-fast bacilli. Another became free from the bacilli, and the condition of the bladder interior seemed improved. One who was apparently much better also had a lessening of the number of bacilli in the urine. There was no improvement in symptoms or in the appearance of the bladder in four cases.

The treatments were tolerated remarkably well. No harmful effects were seen. While not all were benefited, there was a sufficient number to warrant the belief that intrabladder therapy of this kind has a place as an adjunct or supplemental measure in the treatment of bladder tuberculosis. Perhaps patients with earlier and more favorable lesions would have improved results.

126 East Sixty-First Street.

TUBERCULOSIS OF THE GENITAL TRACT

HUGH H. YOUNG, M.D.
BALTIMORE

The subject of tuberculosis of the seminal tract has for years been highly controversial. Some of the questions at issue have been: Which is the primary seat, the epididymis or the seminal vesicles? Does the pathologic process within the scrotum start in the globus major or the globus minor? Does it reach these through the blood stream, by the lymphatics or down the vas deferens? Has heliotherapy or hygiene any value? Is castration preferable to epididymectomy? Should operation be attempted if the bladder, kidneys or lungs are involved? Seminal vesiculectomy has hardly been mentioned.

In the literature one will find a great array of papers in which leading surgeons and urologists have expounded views at variance on the subject of genital tuberculosis. In my early days on the surgical staff of the Johns Hopkins Hospital, castration was the rule in genital tuberculosis. Later we employed the Bardenheuer operation of epididymectomy.

A little later von Bünger recommended that after isolation of the epididymis, in order to remove as much as possible of the tuberculous vas, it should be forcibly divulsed by violent traction, which often brought considerable lengths of involved vas deferens from back of the bladder through the inguinal canal; but subperitoneal infection and miliary tuberculosis occasionally resulted. I then modified the procedure by dividing

From the James Buchanan Brady Urological Institute, Johns Hopkins Hospital.
Read before the Section on Urology at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 14, 1934.

the vas deferens below the external ring and then, by means of a clamp in the inguinal canal, brought it out through the skin of the groin, opposite the upper end of the inguinal canal, where free drainage could be obtained and the seminal vesicles be treated by intravasal injections.

In 1900, being convinced that seminal vesiculectomy was desirable in certain cases, I presented an extraperitoneal, retrovesical suprapubic method of removing the seminal vesicles and epididymides. Although this technic was not difficult, the results were not good, because the drainage of the deep wound was unsatisfactory. Postoperative miliary tuberculosis occurred. As the years went by I was impressed more and more with the fatalities that occurred with considerable frequency in cases of genital tuberculosis which had been treated only by epididymectomy or castration.

Having attacked the seminal vesicles in conjunction with the operation of perineal prostatectomy, I again resorted to seminal vesiculectomy through the perineum in cases of tuberculosis.[1] Using a long prostatic tractor, which could be introduced through the urethra, I had little difficulty in removing the seminal vesicles and involved portions of the lateral lobes of the prostate through the perineum, without opening the urinary tract and then, at the same sitting, in removing the one or both epididymides and the entire vas deferens through an incision in the groin. This operation is sufficiently depicted in the accompanying illustrations.

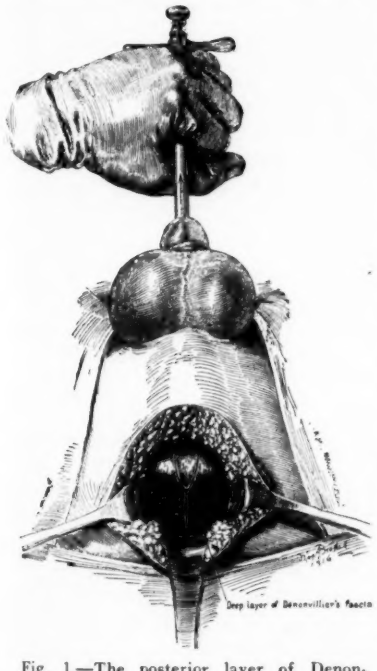

Fig. 1.—The posterior layer of Denonvilliers' fascia has been pushed backward with the rectum, exposing the anterior layer of Denonvilliers' fascia covering prostate and seminal vesicles. Y shaped incision through capsule is shown.

After employing this technic for nine years, I collected all cases of tuberculosis of the genito-urinary tract in which operation had been done in the general surgical wards and in the urologic department.[2] These studies proved to be of great interest. In the first place, it was shown quite conclusively that tuberculosis of the epididymis began more commonly in the globus minor than in the globus major; that it reached the epididymis probably through the lymphatics, perhaps also by way of the vas deferens, but not often through the blood stream; that the testicle was rarely involved until late, and that castration was seldom necessary. This study showed also that in the majority of cases the seminal vesicles were involved or were surely the primary focus from which the tuberculosis spread to the epididymis in most instances; that from the seminal vesicles the kidney was not infrequently involved by the retroperitoneal lymphatics, and that from the same source the bronchial glands and the lung itself sometimes were invaded. These statistics showed conclusively that Kocher's assertion was true that an operation on genital tuberculosis is indicated, even though the lungs are involved, that the more the external focus of disease can be removed, the better chance there is for the arrest of the pulmonary involvement.

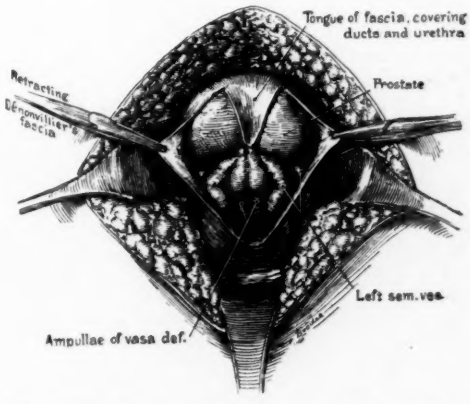

Fig. 2.—Denonvilliers' fascia dissected up from the lateral lobes of the prostate and seminal vesicles.

In the same paper I presented a complete report of fifteen cases in which my radical operation for tuberculosis of the seminal tract had been carried out. Among these, lung tuberculosis was present or suspected before operation in seven cases, and renal tuberculosis before operation in five; the operative mortality was 0. There was one death from lung tuberculosis twelve months after operation, and one patient had not been heard from. An excellent result was obtained in thirteen cases.

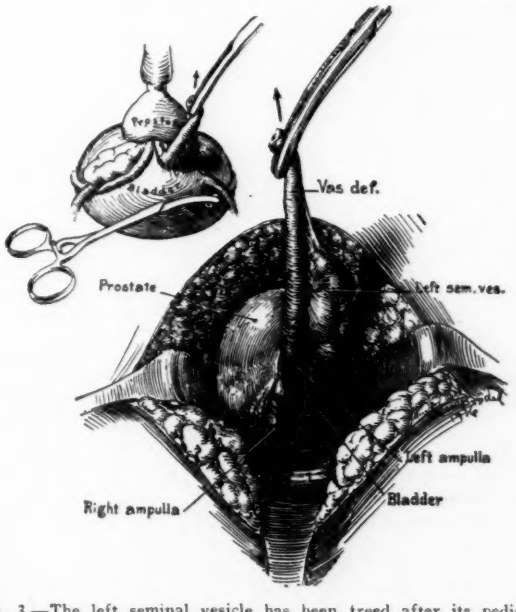

Fig. 3.—The left seminal vesicle has been freed after its pedicle has been clamped, ligated and divided. The vas divided high up is clamped and drawn downward. The right vesicle is freed and drawn down in the same way.

This report showed very conclusively that the radical operation for tuberculosis of the seminal tract, combined (if necessary) with epididymectomy, with castration and sometimes with nephrectomy, which had been carried out in three cases, showed very much

1. Young, H. H.: Surg., Gynec. & Obst. **26:** 608-615 (June) 1918.
2. Young, H. H.: The Radical Cure of Tuberculosis of the Seminal Tract, Arch. Surg. **4:** 334-419 (March) 1922.

better results than had been obtained by the partial operations of epididymectomy and castration.

Very conclusive proof of the inadequacy of epididymectomy is shown in a later study of cases[3] of unilateral tuberculosis of the epididymis, without involvement of the kidneys, ureters or bladder, and is as follows:

Résumé of 38 cases of unilateral epididymectomy without urinary involvement. Dead, 11 cases, 29 per cent. Of those alive, 5 have been followed less than 1 year. Well on last report, five years or more, 6 cases; four years, 2 cases; three years, 1 case; two years, 2 cases; one year, 2 cases; less than one year, 3 cases; total 16, or 42 per cent. Well over one year, 13, or 38 per cent. Improved 5, or 13 per cent. Not improved 6, or 16 per cent. Of the 16 cases classed as well, all but 5 required other operations after the primary epididymectomy, viz.: nephrectomy 4; epididymectomy on other side 7; radical operation seminal tract, 1. In 15 (40 per cent) we know that the opposite epididymis became involved subsequently.

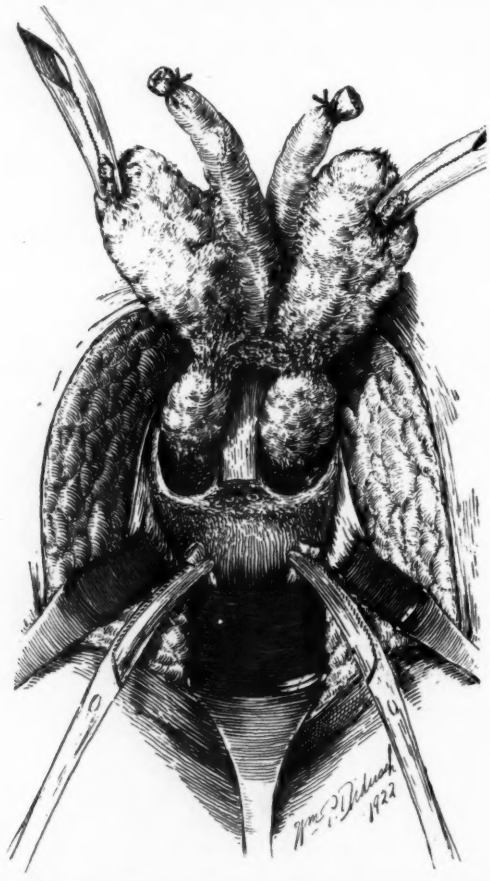

Fig. 4.—The seminal vesicles, ampullae and lateral lobes of the prostate have been freed from the bladder and urethra, which remain intact. The vasa deferentia are still held by clamps.

I have intentionally included the two previous sets of statistics to show how my early confidence in the radical treatment of genital tuberculosis has been confirmed by subsequent studies of cases. With the passage of time, and with successful results in cases far advanced or complicated with tuberculosis of the lungs or kidneys, or both, I have made bold to extend the operation even to cases in which the prognosis was manifestly poor, with the hope that at least local relief and prolongation of life could be obtained. There are a number of such cases in the fifty I am now presenting. Among these tuberculosis of the lungs was definitely diagnosed by x-rays in twenty-seven cases, twelve as active and fifteen as inactive. Unilateral tuberculosis of the kidney was present in fourteen cases and bilateral involvement in one. Tuberculosis of the bones and joints was present in four. Epididymal involvement was present, unilateral in fourteen and bilateral in thirty-one cases. There were five cases in which there was no involvement of the epididymides. The prostate and vesicles were involved in all.

Before the radical operation was carried out, the following operations had been done: epididymectomy, unilateral in five and bilateral in one; drainage of the epididymis, five; castration, eleven; nephrectomy, fourteen. There were other cases in which vesical tuberculosis was present, and in some cases perivascular sinuses and fistulas or infections, which rendered the operation more difficult and hazardous.

The results obtained in these fifty cases are shown in the following summaries: There were four deaths in the hospital. In one of these there was a retrovesical abscess before operation and the patient died from tuberculous peritonitis. In the other three cases death resulted from complications of the lungs previously present. There were no operative deaths.

Dr. Lloyd G. Lewis has made a very careful analytic study of these cases, based on questionnaires, and has also personally examined a good many of the patients. He has been able to follow forty-one cases in which the radical operation has been performed. The results are as follows: Seven patients are living and well more than ten years after operation, and one patient died after seventeen years of pulmonary tuberculosis, which was present before operation. There are seven patients who were operated on from five to eight years ago. Three of these are known to be free from tuberculosis, and four have been cured of genital involvement but still suffer from pulmonary lesions. Three patients died nine, eight and six years, respectively, after operation, two of pulmonary tuberculosis (which was present before operation) and one of diabetes. Nine patients have died of tuberculosis within two years after leaving the hospital: lungs, three; kidneys, one; meninges, one; miliary, three; undetermined, one. These patients had pulmonary tuberculosis, as shown by roentgen examination, before the radical operation was performed. Sixteen patients are living from one to seventeen years after operation. Of these, eight are free from tuberculosis and eight have signs of tuberculosis elsewhere: vesical tuberculosis, two; renal (bilateral), two; colon, one; lungs, two; bones and joints, one. All these complications were present on admission.

In determining the value of the radical operation in these cases, which have been tabulated and analyzed, one must consider the conditions present on admission. As stated, tuberculosis of the lungs (active or arrested) was shown by the x-rays to be present in 50 per cent of the cases, unilateral involvement of the kidneys in fourteen cases and bilateral in one, and tuberculosis of the bones and joints in four cases. It is therefore evident that many patients included in this series were poor operative risks. The fact, however, that twenty-seven of the forty-one patients are living and that sixteen of them are shown to be entirely free from tuberculosis and the others with only preexistent involvement in other organs, proves conclusively the value of the radical removal of the entire seminal tract involvement.

3. Young, H. H.: Practice of Urology, Philadelphia: W. B. Saunders Company **1**: 326, 1926.

As an example of the possibilities of the operation, three cases are herewith cited in brief:

N. D., aged 29, admitted Oct. 7, 1916, had had the right kidney and epididymis removed for tuberculosis seven years before. Examination showed involvement of the remaining epididymis, prostate and vesicles, but these were completely removed by the radical operation. Examination now (fourteen years later) shows him to be free from tuberculosis and well.

A. O., aged 26, admitted Jan. 26, 1924, had had a nephrectomy for tuberculosis performed five years before. Examination showed tuberculosis of the seminal vesicles, prostate, epididymides and bladder. Complete radical operation was carried out, and the patient now reports (seven years later) that he is well.

A. B., aged 43, admitted June 3, 1925, had had the left kidney removed three years previously on account of tuberculosis. Examination showed involvement of both epididymides, vasa and vesicles. Complete radical operation was carried out. Six years after operation the patient was free from tuberculosis but had diabetes and died of carbuncle.

In closing I can, with every assurance of accuracy, state that at the Brady Urological Institute the addition of seminal vesiculectomy to epididymectomy in cases of genital tuberculosis has given far better results than were ever obtained by simple epididymectomy, and that the radical operation in itself is accompanied by a minimum of danger, the fatalities having in all instances been of patients with severe complications.

CONCLUSIONS

A series of statistics have been presented which are in complete agreement as to the following facts concerning genital tuberculosis:

The disease arises more commonly in the prostate and vesicles than in the epididymis.

Genital tuberculosis is ultimately accompanied by tuberculosis of the lungs or kidneys in a large percentage of cases.

If the seminal vesicles are involved, adequate drainage is not furnished by the ejaculatory ducts, and from

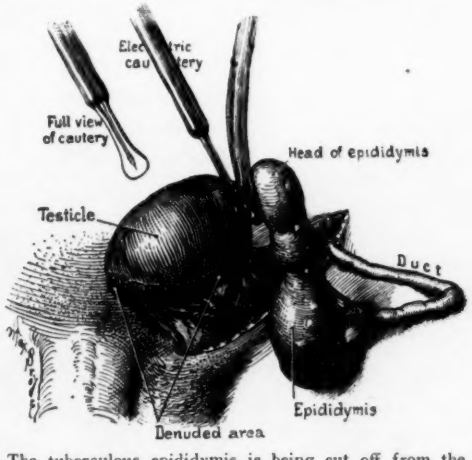

Fig. 5.—The tuberculous epididymis is being cut off from the testicle by the cautery, after which the testicle is returned to the scrotum.

this region the disease progresses downward to the epididymis or upward to the kidneys or lungs.

The presence of renal tuberculosis, which has occurred in about 30 per cent of the cases, is no bar to carrying out the radical operation, in addition to nephrectomy, and curative results may thus be obtained.

The presence of old or recent tuberculosis of the lungs is often no contraindication to the radical operation; in fact, it is one's duty to assist, if possible, in the arrest of pulmonary tuberculosis by removing the external foci of tuberculosis.

If the disease is apparently localized within the scrotum, most careful examinations should be made to rule out involvement of the vesicles and prostate before relying entirely on epididymectomy, which generally will not arrest tuberculosis of the vesicles.

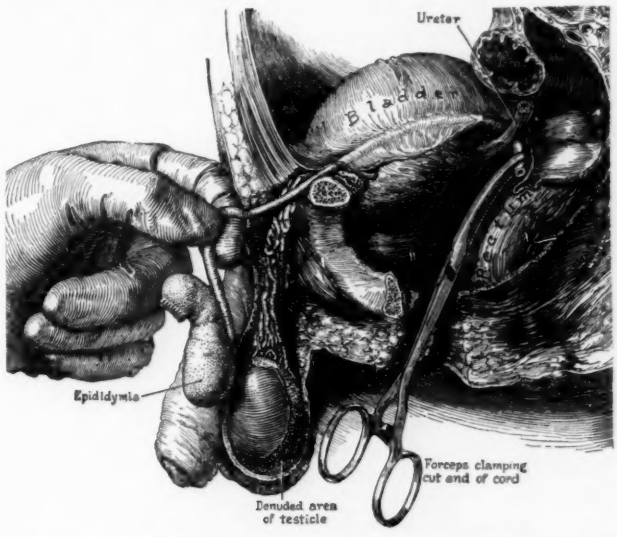

Fig. 6.—Method of traction (alternating between operator in groin and assistant pulling on clamp in perineal wound on vas) by which vas is freed and then drawn out through inguinal canal.

The radical removal of the seminal tract, both epididymides, vasa, vesicles and lateral lobes of the prostate is the operation of choice in the treatment of genital tuberculosis.

ABSTRACT OF DISCUSSION

DR. W. F. BRAASCH, Rochester, Minn.: All are aware that in Dr. Young's hands the operation that he so well described is unquestionably a procedure that is worthy of serious consideration. However, that the average urologic or general surgeon can do as well is decidedly open to question. This is evidenced by the fact that, although not many such operations have been performed, I have observed three patients operated on elsewhere who came because of a permanent urethrorectal fistula. Furthermore, one must hesitate to advise an operation that even in the most skilful hands has an immediate and late mortality as high as is shown by Dr. Young's figures. In the first place one must decide whether so radical an operation for pangenital tuberculosis is necessary. It is well known that in cases of renal tuberculosis evidence of some form of genital tuberculosis is present in the great majority of cases. Among some 1,200 patients operated on for renal tuberculosis at the Mayo Clinic, evidence of involvement of the genitalia was discovered on clinical examination in approximately 80 per cent. Most urologists have found surgical treatment advisable only in the epididymis or testicle. Why should the tuberculous epididymis or testicle be operated on? Largely because of the common tendency to suppuration and formation of abscess. In contrast, suppuration of the prostate or the seminal vesicles is rarely observed. The late mortality following nephrectomy for renal tuberculosis in patients with evident involvement of the prostate and seminal vesicles is no higher than among those without such an involvement. This is shown by the fact that among the female patients operated on for renal tuberculosis, most of whom have no evidence of involvement of the genitalia, the late mortality was little, if any, less than in the males. What would be the best procedure in the presence of tuberculosis involving all of the genitalia? Tuberculosis of the epididymis is arrested by heliotherapy in many cases, as has been shown by a number of observers. The great difficulty, however, in advising patients to use heliotherapy is the difficulty of securing adequate radiation. Furthermore, extension of the disease in the epididymis with involvement of the testicle is

sometimes observed in spite of ideal irradiation. I have observed that the tuberculous epididymis is best removed surgically before suppuration takes place and that heliotherapy should be employed as an adjunct. In this way suppuration and involvement of the testicle can be obviated. Reexamination of patients in whom tuberculosis of the prostate and seminal vesicles was found five or ten years afterward shows that nature has taken care of these tissues. On rectal examination but little evidence of the previous infection is usually made out. In some, cicatricial areas may be felt; in others, the prostate and vesicles seem to have atrophied. In only an occasional case is there any evidence of an active tuberculous process. The burden of proof still rests with Dr. Young in showing that the late mortality following complete removal of the genitalia is any better than when left alone.

DR. C. J. MCDEVITT, Cincinnati: Early diagnosis and radical removal of genital tuberculosis offers the greatest hope of cure. With active pulmonary tuberculosis complicating the picture, however, one is justified in withholding surgical therapy a reasonable length of time in the hope of first arresting the pulmonary lesion.

THE INCIDENCE OF RENAL TUBERCULOSIS

IN FIVE HUNDRED AUTOPSIES FOR PULMONARY AND EXTRAPULMONARY TUBERCULOSIS

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STATEN ISLAND, N. Y.

After a careful survey of the literature it is amazing to learn of the various opinions and theories concerning renal tuberculosis. It comprises 30 per cent of all surgical lesions of the kidney, being more than twice as common as renal tumors. The disease usually afflicts persons in the prime of life and, if not successfully treated, may lead to extensive involvement of the genito-urinary system.

Despite advances made in the recognition and treatment of renal tuberculosis, the disease is often overlooked. In a service confined to a large institution caring for tuberculosis in its various forms, one becomes "tuberculosis conscious" and ever on the alert for manifestations of this disease in the genito-urinary system. But in private practice and in a general hospital where tuberculosis is infrequently encountered, involvement of the genito-urinary tract is often overlooked. This is especially true in early renal tuberculosis, in which symptomatology is markedly deficient and routine physical examination fails to reveal evidence of extrarenal tuberculosis.

We believe that neglect in recognizing tuberculosis in other parts of the body often leads to a failure in the recognition of early kidney involvement. To make a diagnosis of renal tuberculosis after extensive caseation and excavation has occurred is no difficult task. The recognition of early preclinical renal tuberculosis requires the greatest care, and until some reliable method is developed every effort must be made to correlate all clinical, roentgenologic and pathologic data. For this reason we submit the present compilation of statistics.

From the Departments of Urology and Pathology, Sea View Hospital, City of New York Department of Hospitals.

Read before the Section on Urology at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 14, 1934.

SOURCE OF MATERIAL

The material that forms the basis of this report was gathered from Sea View Hospital, a 1,750 bed institution. This is a municipal tuberculosis hospital situated on Staten Island in New York harbor. The report

Fig. 1.—Kidney that was of normal size (the illustration is about seven tenths the size of the original). Capsule stripped easily, leaving a smooth surface studded with a number of varying sized, yellowish white areas extending into the kidney substance. Similar areas are present on cut surface both in the medulla and in the cortex. The pelvis, calices and ureter are normal.

covers the period from June 1932 to April 1934. The data were obtained from routine postmortem examinations correlated with the clinical observations obtained by the careful analysis of the history of each case.

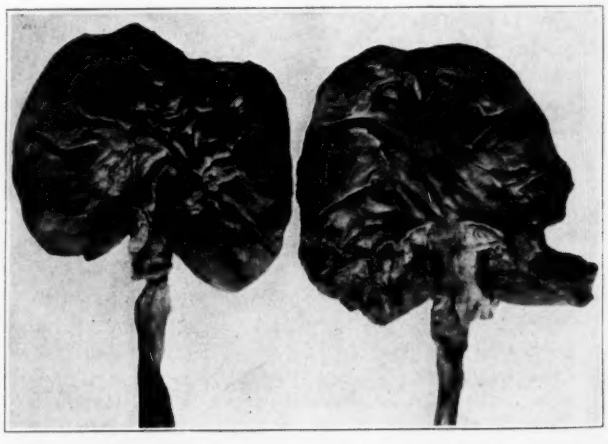

Fig. 2.—The surface of both kidneys shows irregularly distributed, numerous, small, yellowish white areas which, on section, seem to extend into the kidney substance. Both ureters are dilated, but at the ureteral pelvic junction of the left kidney there is a sharp, double kink which effectively obstructs the lumen. The upper left calix is so enlarged that it reaches into the cortex.

Of the 500 cases in which necropsy was performed, 252 showed evidence of tuberculous infection, as shown in the accompanying table. Miliary tubercles were found in 228, or 45.6 per cent. By this we mean small tubercles that can be recognized grossly (figs. 1, 2 and 3). They are gray or yellow, are single or conglom-

erate, and often lie in rows and follow the medullary rays into pyramids. Microscopic examination of these sections revealed that they vary from necrotic areas to fibrotic tubercles. These necrotic areas showed a number of polymorphonuclear leukocytes and acid-fast bacilli when stained with Ziehl-Neelsen's stain. Hyperemia was present in the remaining portion of the kidney but was more pronounced in the tissue adjacent to the tubercle.

In this group the disease was found to be bilateral in 187 cases, or 82 per cent, and unilateral in forty-one cases, or 18 per cent. The youngest patient of this group was 9 months old and the oldest 74 years. The average age was 36. There were 157 males, seventy-one females; 154 of the white, seventy-two Negroes and two of the yellow race in this group. Only 25 per cent had urinary symptoms. The most common complaint was nocturia and frequency.

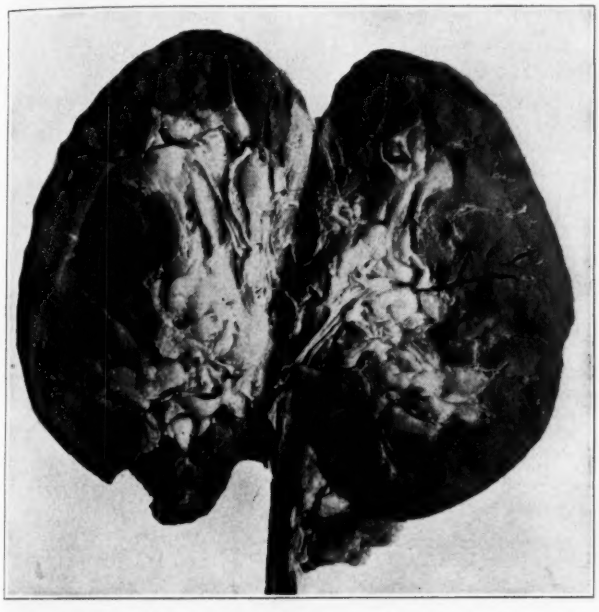

Fig. 3.—This kidney was slightly larger than normal. The capsule stripped with ease, leaving a smooth surface on which there are a number of small, yellowish white areas, extending into the cortex. The calices, pelvis and ureter show no evidence grossly of pathologic change.

Of the 500 cases in which necropsy was done, organ tuberculosis was found in only twenty-four cases, or 4.8 per cent. By organ tuberculosis we mean a destruction of the kidney substance. In the early cases there was often an area of caseation in the cortex of the upper pole (figs. 4, 5 and 6). This area of caseation extended through the medulla to the calix adjoining it. When the area of caseation liquefies, a cavity results. In a fully developed "organ tuberculosis" there is extensive destruction of the kidney parenchyma (figs. 7, 8, 9 and 10).

In this group the disease was found to be bilateral in thirteen cases, or 54 per cent, and unilateral in eleven cases, or 46 per cent. The youngest of the group was 23 and the oldest 59 years of age. The average age was 39. There were twenty men, four women; twenty-one of the white race and three of the Negro race in this group. Sixty per cent of the cases in this group presented some evidence of urinary disturbances surprisingly mild as compared to the pathologic changes found at the postmortem table.

In sixteen cases the tuberculosis was extrapulmonary and the renal involvement bilateral. In all but one it was of the miliary type. The youngest of this group was 1½ years and the oldest 56 years of age. The average age was 22. There were nine males, seven females, five of the white, ten of the Negro, and one

Fig. 4.—Bilateral pyelogram, revealing tuberculosis of the upper pole of the left kidney.

of the yellow race in this group. The outstanding cause of death was tuberculous meningitis, ten; tuberculous peritonitis, four; generalized miliary tuberculosis, two.

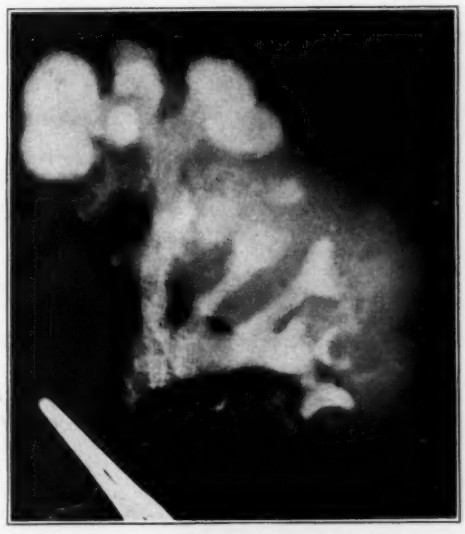

Fig. 5.—Same case as in figure 4. Kidney injected with sodium iodide, after removal. Lesion in the upper pole of the kidney.

COMMENT

Certain allowances should be made for differences of opinion regarding histologic interpretations. Young adults in whom gross examination revealed scar forma-

tion microscopically showed circumscribed areas of fibrous tissue. The kidney showed no evidence of arteriosclerosis. Such a lesion could be classified only as healed tuberculosis by inference.

In the terminal stage of pulmonary tuberculosis, hematogenous dissemination of tubercle bacilli is a

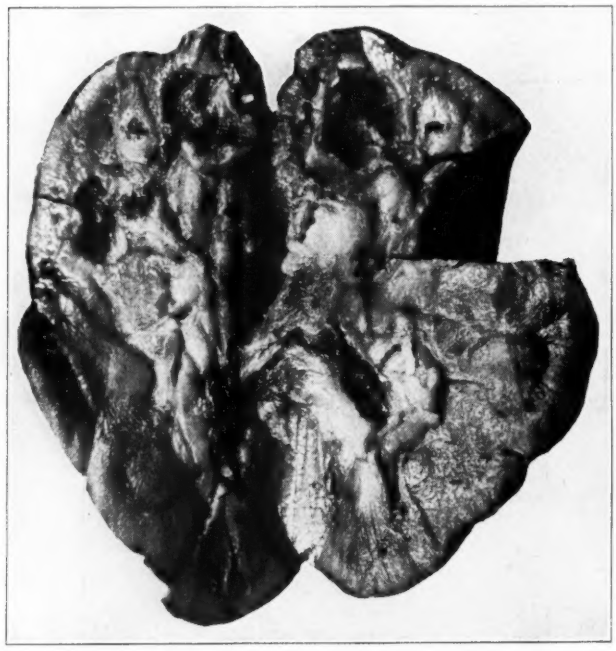

Fig. 6.—Same case as in figures 4 and 5, demonstrating relatively early involvement of tuberculosis of the kidney. Excavation is present.

frequent occurrence and macroscopic and microscopic tubercles can be found in the liver, spleen and kidneys. These areas of tubercle formation found at the necropsy table are not to be regarded as evidence of previously existing clinical tuberculosis but as a phase of the terminal stage of the disease.

It is probable that this explains the unusually high percentage of miliary tuberculosis found in our series.

Number of Cases (252, or 50.4 per Cent) Presenting Renal Pathologic Changes

							Miliary Tubercles		Organ	
		Male	Female	White	Negro	Yellow	Bilateral	Unilateral	Bilateral	Unilateral
Chronic pulmonary tuberculosis.....	484	168	68	170	65	1	172	41	12	11
Extrapulmonary tuberculosis.....	16	9	7	5	10	1	15	0	1	0
Total.....	500	177	75	175	75	2	228 45.6%		24 4.8%	
		252		252			252			

Clinically this type of renal infection is of little significance. It rarely is accompanied by urinary symptoms, has no radiographic signs of alteration in the renal architecture, and is demonstrable only at postmortem examination. This type is commonly referred to as the nondestructive, closed lesion.

Organ tuberculosis is the pathologic condition most frequently encountered by the clinician and urologist. It is the type of lesion that shows definite pyelographic changes and is clinically recognizable. Despite marked renal involvement, symptoms in this group are often surprisingly lacking, as shown in our series. This has been confirmed by other observers and is explained by the absence of tuberculous involvement of the ureter and bladder.

The observations of other investigators are of interest, for they report that more than 30 per cent of the victims of genito-urinary tuberculosis succumb to miliary tuberculosis and tuberculous meningitis. Such a preponderance of tuberculous meningitis as the cause of death was not encountered in our cases.

It is our belief that careful postmortem examination will often reveal a high incidence of bilateral miliary renal tuberculosis. This must not be interpreted as meaning that clinically bilateral miliary renal tuberculosis is common but rather that this occurred as a terminal manifestation of the disease a few weeks prior to death.

Mention has repeatedly been made of the greater preponderance of tuberculosis among the Negro race as compared to the white race. In our series, 69 per cent of the cases presenting renal tuberculosis were of the white race. This percentage corresponds to the proportion of white inmates at Sea View Hospital and must not be taken as an index of the virulence of the disease in the white race. An average census taken during the period of this study from June 1932 to April 1934 shows between 1,750 and 1,800 beds occupied. During this period there were admitted 3,224 white patients, as compared with 807 Negro and twenty-seven yellow patients.

SUMMARY

1. An attempt has been made to correlate the incidence of renal tuberculosis in 500 cases of pulmonary and extrapulmonary tuberculosis.

2. Statistics reveal the high incidence of bilateral renal tuberculosis.

3. The nondestructive, closed or miliary lesion is common.

Fig. 7.—Kidney that was slightly larger than normal. Tuberculous excavation with almost entire kidney involved.

4. The destructive, open, organ or chronic surgical tuberculosis of the kidney is notably deficient in symptoms despite the advanced renal involvement.

5. Pulmonary tuberculosis appeared as the primary focus of infection.

40 East Sixty-First Street.

ABSTRACT OF DISCUSSION

DR. ROY B. HENLINE, New York: This study shows additional evidence of the frequency of kidney infections secondary to tuberculosis elsewhere in the body. Probably most other renal infections reach the kidney similarly by way of the blood stream and form small infected areas, which follow the medul-

Fig. 8.—Hypertrophied kidney. Extensive excavation of upper and lower calices. Multiple areas of caseation, with central excavation.

lary rays into the pyramids. This may therefore be a basis for more clearly understanding the earlier phases of all kidney infections and permit more intelligent treatment. The miliary tubercles found in 45 per cent of these 500 necropsies are probably the pathologic entities that have given rise to the term "preclinical" or silent stage of tuberculosis. This stage of renal tuberculosis is never recognized clinically. However, the same phase of a pyogenic infection, so-called pyelitis, is commonly seen in children who manifest normal urine, fever and prostration for from twenty-four to forty-eight hours, followed by a shower of pus and bacteria in their urine as the infection gains an exit into the kidney pelvis. Further evidence that small tubercles in the renal cortex may heal corresponds to the recent generally accepted views. These healed lesions are rarely seen except at autopsy, and conclusive proof that they are tuberculous in origin is lacking. Bilateral renal tuberculosis was present in almost 80 per cent of the 252 cases in which tuberculous infection of the kidneys was found. This percentage of bilateral involvement is much larger than one finds clinically, and thus many of these infections must have occurred shortly before death. Less than 5 per cent showed gross renal destruction and less than half of these were unilateral. Of ninety-seven cases of nephrectomy for tuberculosis in my services in New York City, less than 5 per cent showed any gross evidence of bilateral involvement, as determined by the renal function test, infected urine or pyelogram. Since we are concerned with the problem of treating tuberculous kidneys, one must believe that bilateral clinical renal tuberculosis is rare. The symptoms of renal tuberculosis in no way correspond to the kidney damage. Many grossly destroyed kidneys manifest very few urinary symptoms, while a very small lesion may give rise to severe bladder and general symptoms. This obviously depends on the lesions in the bladder. It is my opinion that some types of renal tuberculosis will heal spontaneously, that tuberculous bacilluria without renal disease does not exist, that a tuberculous kidney should be removed when pyelographic evidence shows the occurrence of destruction and when the function is diminished, that bilateral renal tuberculosis occurs more often than was formerly believed, and that in some patients in whom bilateral renal tuberculosis has been diagnosed removal of the destroyed kidney offers the greatest hope of benefit to the patient.

DR. THOMAS D. MOORE, Memphis, Tenn.: The frequent terminal involvement of the kidneys with miliary tubercles in patients dying of general or pulmonary tuberculosis is of more academic interest to the urologist than of practical importance. Renal tuberculosis of the type referred to by the authors as "organ tuberculosis" is of paramount importance and occurred in about 5 per cent of their cases. This complication is evidently commonly overlooked or neglected in institutions caring for tuberculous patients. In a 300 bed sanatorium near Memphis a member of the staff stated that they were interested chiefly in the chest, that genito-urinary symptoms and pyuria were seldom investigated urologically, and that patients with urinary involvement seldom did well. In a study of the records in six sanatoriums for the tuberculous, Young noted evidences of the disease in the urinary tract in seventeen cases; cystoscopy and ureteral catheterization had been employed in only three. It was noted that, when the genital or urinary tracts became involved, the outlook was unfavorable and that most of these patients died. Institutions with a record of a high percentage of cures of pulmonary tuberculosis may show, in marked contrast, a 100 per cent mortality record in cases with renal disease. On the other hand, it is not uncommon to observe the rapid improvement in the condition of a patient with pulmonary tuberculosis after the removal of a tuberculous kidney. The nephrectomy enables his defenses to become concentrated on the pulmonary process with beneficial effect. This is especially true if the operation has been performed under paravertebral nerve block or spinal anesthesia, thus avoiding the insult to the lungs of a general anesthetic. Those specializing in tuberculosis should be impressed with the absolute need of alertness in recognizing involvement of the genital and urinary tracts. It

Fig. 9.—Moderate enlargement of kidney. Multiple renal calculi. Multiple areas of excavation with productive tissue reaction at periphery.

behooves urologists to bring to their attention that radical surgical measures adopted early will combat in an effective way the bad results so common at present.

DR. WILLIAM ROSENBERG, Cleveland: Many of the changes in renal tuberculosis may be explained on the basis of bacterial allergy. Certain lesions of the kidney are probably dependent on the degree of sensitization of the cells and the size of the

shocking dose of the tubercle bacilli or their toxins. The greater the dose for a given sensitivity, the more extensive the exudative phenomena that result.

DR. FREDERICK LIEBERTHAL, Chicago: In all cases of tuberculous renal bacilluria, the kidneys should be examined very carefully. It is amazing how many pathologists, expert in their field, will merely open the pelvis and split open the ureter without looking at the renal papillae. If one will take scissors, however, and split open every calix to its very termination and examine every renal papilla carefully, one will be sure to find a tuberculous lesion on a renal papilla in every case in which tubercle bacilli have been demonstrated in the ureteral catheter specimen of urine. If this procedure should be followed in every doubtful case, fewer reports would be found in the literature of a so-called tuberculous renal bacilluria without a tuberculous renal lesion. On the finding of such a minute specific renal lesion rests the disproof of the existence of a tuberculous nephritis in each given case.

DR. MONROE E. GREENBERGER, New York: At Seaview Hospital we are in a sort of urologist's utopia, because of the cooperation that exists between our department and the attending medical staff. The medical director, Dr. George G. Ornstein, is surgically minded and is in complete accord with the

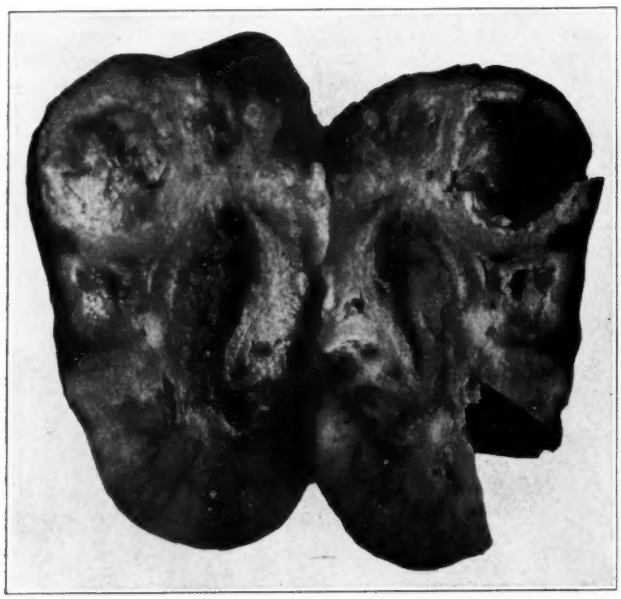

Fig. 10.—Kidney that was smaller than normal. Extensive productive changes predominating. Tuberculous abscesses surrounded by thick, fibrous tissue.

urologist's point of view in the treatment of renal tuberculosis. In the majority of sanatoriums throughout the country, as Dr. Moore pointed out, it is most difficult to obtain permission to operate or even to work up a case. The report that we presented covered only our autopsy studies. We have been fortunate in operating in a number of cases and obtaining results corresponding to those reported by others throughout the country. The patients live longer and in greater comfort than they would if treated only medically.

Probably Once in Fifty-Seven Million Confinements.—As plural births go, twins are fairly common, about one in 87 confinements giving rise to twins. But the scarcity of plural births goes up very fast with the number born at one confinement. It has, in fact, been pointed out by W. W. Greulich of the University of Colorado that the scarcity increases approximately like the powers of 87; while one confinement in 87 brings twins into the world, triplet births would be expected about once in 7,569 confinements, this number being the square of 87; and quadruplets once in 658,503 births, this being the cube of 87. If this law continued for higher orders of plural births we should expect quintuplets once in 57 million confinements. —*Statist. Bull. Metropolitan Life Insurance Company*, July 1934.

THE EFFECT OF ATHEROSCLEROTIC PLAQUES

ON THE DIAMETER OF THE LUMEN OF CORONARY ARTERIES

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EUGENE BIRCHWOOD, M.D.
AND
H. GIDEON WELLS, M.D.
CHICAGO

It is a common observation that postmortem examination may reveal extensive atherosclerotic changes in the coronary arteries of the hearts of persons who have shown no marked evidence of myocardial damage during life. This raises the question whether thick atherosclerotic plaques, which seem nearly to occlude the coronary arteries when these are seen in the collapsed state at the postmortem examination, really diminish to an equal degree the lumen of the artery when it is distended with blood under the usual intravascular pressure. The classic observation of Thoma [1] convinced him that atherosclerotic plaques in the aorta really did not protrude into the lumen but merely filled in bulgings resulting from weakness of the media. He made paraffin casts of the aorta at blood pressure and reported that the plaques which bulge into the lumen after death are really ironed out during life when the aorta is filled under the usual tension of the blood pressure. He therefore considered arteriosclerotic plaques as patches which fill in the depressions resulting from focal weakening of the wall. Attempts have been made to repeat this work, particularly by Ophüls [2] in 1906 and Klotz [3] in 1910, who obtained negative or unsatisfactory results and could not confirm Thoma's observations on the aorta.

Thoma's conception of the development of arteriosclerosis with primary medial changes and secondary atheroma formation is supported by some investigators, notably Beitzke,[4] and it has often been pointed out that in the coronary arteries the media is usually found to be thinner under sclerotic plaques than elsewhere, although it has not been determined whether the plaque formation is primary or secondary to the medial condition. Many students of atherosclerosis consider the intimal changes as primary (Duguid,[5] Klotz [6] and Ophüls [7]), but the exact nature of the process has not yet been determined. Regardless of the primary or secondary nature of the plaques, they seem to narrow the lumen of the dead arteries; but whether they do so in living hearts has not been determined. A great volume of work has been published on coronary arteriosclerosis and we do not wish to add needless or purposeless material, but as we have not found a comparative study of the caliber of the vessels at blood pressure and in the collapsed postmortem state we venture this brief report.

From the Department of Pathology, University of Chicago, and the Otho S. A. Sprague Memorial Institute.

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In order to determine the configuration of the lumen of the coronary arteries under living conditions, they were examined roentgenologically when distended with an injection mass of a suspension of barium sulphate, tragacanth and water. Fresh hearts of persons old enough to exhibit coronary atherosclerosis of varying degrees were washed in physiologic solution of sodium chloride and the coronary arteries perfused with the radiopaque solution. The coronaries were then filled with the opaque suspension and this held at mean aortic pressure while stereoroentgenograms were taken in the roentgenologic laboratory of the University of Chicago Clinics under the direction of Dr. Paul C. Hodges. The pressure was then released and the heart the roentgenogram shows well filled vessels with smooth contours and only minor points of narrowing, while the arteries themselves when sectioned show what seem to be very obvious points of narrowing at the sites of plaque formation. These differences are listed in the table and are particularly evident in hearts 1, 2, 4, 5, 6 and 9. (Note the parallel columns of figures for cross section and x-ray narrowing and vessel caliber.) The number of points of apparent narrowing seen on cross section are numerous despite the fact that the roentgenograms of the same arteries when acted on by the normal expansive force of the blood pressure show them to have had a practically uniform lumen without noticeable constriction. The

Observations in Nine Cases

Heart No., Age, Sex, Hospital	Cause of Death	Injection Pressure, Mm. Hg	Right Coronary						Left Coronary					
			Contour		Points of Narrowing		Caliber, Mm.		Contour		Points of Narrowing		Caliber, Mm.	
			Relaxed (Gross)	Distended (X-Ray)	Gross	X-Ray	Gross	X-Ray	Gross	X-Ray	Gross	X-Ray	Gross	X-Ray
1 62 ♂ Oak Forest	Cardiac dilatation	95	Irregular with many plaques	Good round contour, no narrowing	5	0	1.3 1.0 3.0 0.5 0.7	4.0 4.0 4.0 2.0 2.0	Irregular; many plaques	Relative smooth large lumen	4	0	1.0 1.0 1.1 0.8	3.0 2.0 1.5 1.8
2 67 ♂ Oak Forest	Myocardial degeneration	95	Vessels occluded	.....	..	..	...	...	Very irregular with narrowing	Smooth contour; good sized lumen	4	2 slight	2 0 1.0 1.1 0.9	2.0 2.0 4.0 2.5
3 22 ♀ Billings	Chloroma	80	Smooth	Smooth	0	0	...	...	Narrowing due to plaques	Smooth throughout	2	0	1.0 0.5	2.5 2.0
4 42 ♀ Billings	Carcinoma of breast	95	Plaques and narrowing proximally	Smooth and rounded	4	0	1.2 1.3 1.2 1.5	4.0 3.5 3.0 4.0	Plaques and narrowing proximally	Smooth rounded contour	6	2 slight	2.0 1.0 2 5 2 0 2.0 0.2	3.0 2.5 3.0 3.5 2.0 3.0
5 74 ♂ Oak Forest	Heart block	95	Irregular narrowing in all branches	Quite smooth with rounded contour	5	3 slight	1.5 2.0 1.0 0.2 1.0	4.0 4.0 3.0 1.5 3.0	Marked narrowing and apparent occlusion	Poorly injected with ragged contour	2	0?	1.5 0.2	2.5 3.0
6 72 ♂ Oak Forest	Pneumonia	95	Many plaques with marked narrowing	Caliber good, contour ragged	3 marked	Several slight	1.0 1.0 0.7	2.0 1.5 1.5	Many points of narrowing	Caliber of good size but ragged	5	2 slight	1.5 1.5 1.0 1.0 0.5	4.0 3.0 2.5 3.0 2.5
7 64 ♂ Billings	Carcinoma of sigmoid	95	Considerable narrowing throughout	Good caliber with slight narrowing	2 marked	2 slight	1.0 1.0	3.0 2.5	Considerable narrowing throughout	Good rounded caliber; slight narrowing	4	2 slight	1.5 1.5 1.0 0.9	3.1 2.9 3.0 2.0
8 66 ♂ Oak Forest	Malignancy	95	Scattered plaques and points of narrowing	Kinked but good caliber	2	0	1.1 0.9	4.0 4.0	Scattered plaques and points of narrowing	Good rounded contour; slightly irregular	2	0	1.1 1.0	3.5 5.0
9 28 ♂ Oak Forest	Chronic rheumatic pericarditis	95	Vessel occluded	No filling	Occluded	No filling	...	...	A few points of narrowing	Good rounded contour throughout	2	0	1.0 0.5	3.8 2.1

fixed in solution of formaldehyde. After a small series of these hearts had been collected and such plates prepared, the coronary arteries were examined by the usual necropsy methods and rather striking differences were found between the apparent effect of atherosclerosis as seen in the collapsed artery and the real condition of the lumen. The coronaries were sectioned coronally at intervals of from 2 to 3 mm. and the lumen was measured directly with a millimeter rule. The roentgenograms were taken at 27 1/16 inches, 60 kilovolts, 100 milliamperes, and 1 second exposure. There is some slight distortion of the image in such plates but this is far overshadowed by the variations recorded in the accompanying table.

The examination of the roentgen shadow and the gross material brings out certain very evident differences of caliber and contour. In the majority of cases discrepancy is marked in certain instances; for example, the figures for the right coronary artery of heart 1 show a decrease of caliber of the lumen of the collapsed artery to one-half or one-fourth that of the distended artery, except at one point, where it is three-fourths. Similar conditions obtain in the left coronary of heart 2 and the right coronary of heart 4. Rather extreme variations are found in both coronaries of heart 5, but particularly in the left, where in the cross section the lumen is pinpoint, or about 0.2 mm., and in the roentgenogram it is of the usual caliber, or 3 mm. in diameter. Looking at the cross section of this artery as exhibited at the postmortem examination, it would appear that the blood flow at this point would have been greatly reduced, whereas the artery really had an adequate lumen, the same size here as elsewhere. Not all points of narrowing are listed and

the figures are not absolute, as precision instruments were not used. Those given certainly substantiate the very obvious differences seen between the x-ray caliber at mean aortic pressure and the gross caliber seen in the undistended artery.

A more graphic representation of the conditions is furnished by the accompanying illustrations. Figure 1

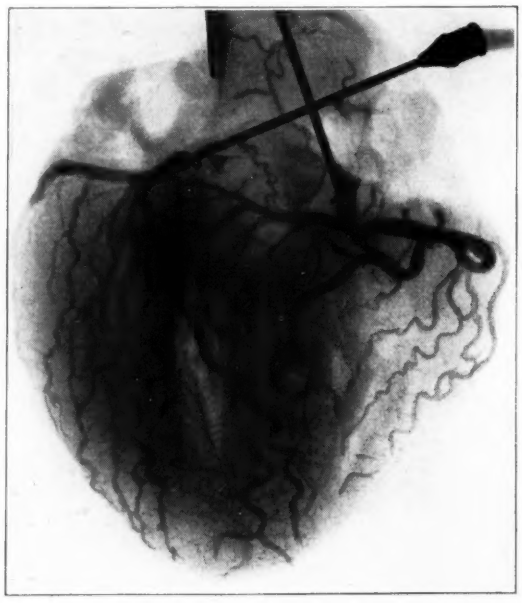

Fig. 1.—Heart in case 4, with the arteries distended under mean systolic pressure. The lumen of the large arteries is seen to be practically uniform, despite the fact that their walls exhibited many sclerotic plaques, which seemed to constrict them at many points.

shows the x-ray appearance of the heart in case 4. It will be seen that the cast of the lumen of the large coronary vessels indicates that the lumen is practically uniform throughout and gives no indication that there is anywhere any appreciable constriction by the numerous atherosclerotic plaques that were present in the walls of these arteries.

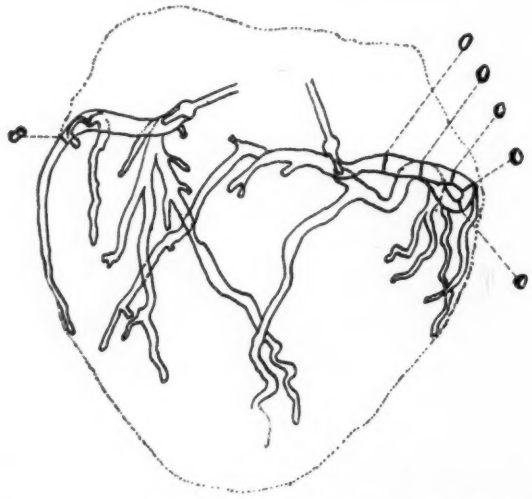

Fig. 2.—Drawn outline of the lumen of the coronary arteries in case 4, with exact reproductions of cross sections of the artery walls at various levels. It is seen that the lumen is quite free from constriction at levels where the artery walls are much thickened by sclerotic plaques.

Figure 2 is a drawing outlining the lumen of the injected coronary arteries of this heart, with exact reproduction of cross sections of these arteries at these points, made from photographs of the stained cross sections. It will be seen that marked variations in the thickness of the artery walls at different levels, and apparent marked constrictions in the lumen, are not associated with any appreciable constriction in the artery when distended by mean systolic pressure.

Figure 3, a roentgenogram of an injected heart, shows that when a coronary artery is really occluded the method of injection used brings out the presence of the obstruction.

Surely, in the light of these rather marked variations in size and contour of the coronary arteries when distended and when collapsed, one must take into consideration the postmortem collapse of arteries in evaluating changes observed post mortem and realize that arteries with apparent narrowing on cross section may not really have been narrowed during life. This is particularly true in instances in which the plaque involves only a small portion of the circumference of the vessel. Fundamentally, these results on a small number of hearts seem to support the view of Thoma

Fig. 3.—Coronary vessels of a heart with fatal occlusion of right coronary artery, showing that the method used demonstrates the presence of actual obstruction (case 9).

that atherosclerotic plaques fill defects in locally dilated vessels and may not encroach on the lumen, at least not to the extent that the postmortem appearance suggests. We would call attention also to the fact that large atherosclerotic portions of vessels when calcified, so that they form rigid casts of the vessels, always present a concave surface toward the lumen, showing that they have not encroached on the lumen during life. These natural casts are equivalent in significance to the original experimental casts made by Thoma.

SUMMARY

A small series of hearts has been examined to determine the relation between the size of the lumen of the coronary arteries at the site of atherosclerotic plaques, as seen in the collapsed artery in the usual postmortem examination, and the true size of the lumen when the artery is distended by the usual blood pressure. The results of this preliminary study indicate that coronary arteries exhibiting many atherosclerotic plaques which,

as seen at postmortem examination seem to cause marked local constrictions, may, when distended by the usual blood pressure, possess a fairly uniform lumen without evidence of constriction. Apparently the atherosclerotic plaques in coronary arteries do not necessarily protrude into the lumen during life, and the apparent narrowings seen in the dead body may not have existed during life.

Clinical Notes, Suggestions and New Instruments

PRIMARY REPAIR OF SEVERED PAROTID DUCT

METHOD OF FIXATION OF AN INLYING DOWEL

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Since 1926 there have appeared three articles[1] emphasizing the importance of the immediate repair of severed parotid ducts. Disfiguring and annoying external parotid fistulas are prevented by this procedure. Such fistulas, as is well known, are often difficult to close. All these authors have recorded successful cases: Tees two, Dickinson one and Black and Flagge one, four in all. The literature previous to 1926 is strangely silent on the subject of primary anastomosis; most discussions and case reports, even those which appeared during and shortly after the World War, concerned themselves with problems of secondary repair and with the control of the discharge. Because the war wounds were ragged, extensive and contaminated, it was impracticable, for the most part, to attempt primary suture. Nevertheless, Schmieden[2] in 1916 reported the primary end-to-end repair of a severed duct on the field of battle; no particulars as to technic were included in his short note.

The authors of the recent articles have been confronted with fresh, reasonably clean wounds in which the ducts had been

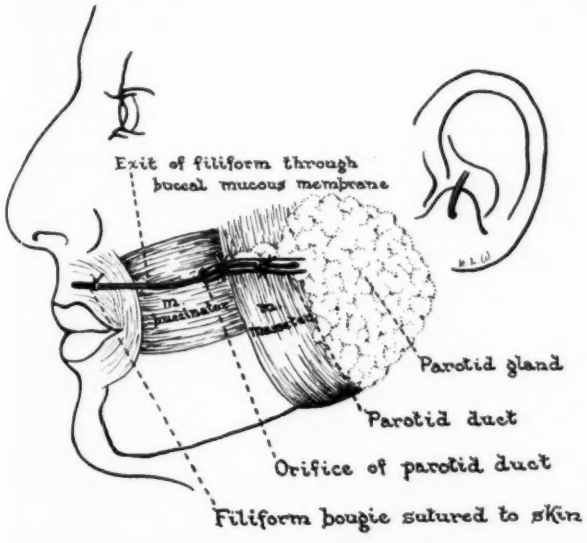

Fig. 1.—Diagram showing filiform bougie used as a dowel over which the parotid duct, severed in two places, was sutured. The filiform was passed out through the cheek and sutured to the skin.

severed sharply somewhere in their masseteric portions. In the cases of Tees a strand of catgut was inserted into the severed ends, where it served as a dowel (Tees) over which the duct was approximated by means of two fine, interrupted catgut sutures passed through the sheath. In one case the oral end of the catgut strand was left hanging out of the opening of Stensen's duct into the mouth; no fixation was used. In the other instance the short piece of catgut was left entirely within the duct, and it is this arrangement which the author advises.

Fig. 2.—Five months after primary repair of severed parotid duct.

Dickinson utilized a strand of silkworm gut, which was allowed to project into the mouth. He then fixed the silkworm gut at its point of entrance into the mouth by a suture. However, the strand fell out into the mouth two days later. Black and Flagge used a small ureteral catheter as a dowel and cut it off, leaving about one inch extending outside the duct into the mouth. The method of fixation, as described in a recent letter from Dr. Black,[3] was by means of two or three interrupted linen sutures passed through the buccal tissues at the orifice of the duct and tied around the catheter. The catheter remained in position until it was removed on the ninth postoperative day. In his letter Black mentioned a subsequent case of primary repair, and also one of secondary suture in which an external fistula had been present for two and one-half months. In both instances he used the technic described in his published case with perfect results.

An interesting case of secondary repair forty-one days after injury to the duct is reported by Butler and Guinan.[4] Their technic included the use of a ureteral catheter, as in Black and Flagge's case, but they anchored it to the canine tooth of the upper jaw with a silk ligature, a technic familiar to oral surgeons.[5] Whenever the lower jaw moved, the catheter slipped back and forth through the duct for about 0.5 cm.[6] Butler feels that the motion is advantageous, provided the catheter is inserted far enough into the duct to prevent its tip from punching out between the sutures at the anastomosis. He removed the catheter on the third day, feeling that possibly there might be sufficient swelling, with the catheter in place, to obstruct the duct.

In the following case a filiform urethral bougie was anchored by passing it from the mouth out through the cheek, and suturing it securely to the skin at the point of exit.

From the University of Louisville School of Medicine and the Department of Surgery, Louisville City Hospital.

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March 10, 1934, W. M., a man, aged 22, was cut deeply with a sharp knife across the left cheek. The wound extended in an upward curve from a point 1 cm. above and slightly medial to the corner of the mouth to a point 2 cm. in front of the lobe of the ear. Under procaine infiltration anesthesia the cleanly incised tissues were washed thoroughly with warm saline solution and all bleeding points were tied with fine plain catgut. On inspection of the wound it was found that the parotid duct had been severed twice, thus isolating the short segment of the structure that curves sharply around the anterior border of the masseter muscle. The knife had passed deeply into the buccinator and anterior portion of the masseter muscles, but the wound was more superficial posteriorly and the parotid gland was uninjured.

A filiform bougie was cut in two and the blunt end of the small half was passed into the mouth through the distal portion of the duct. The smooth tip was threaded back through the isolated segment and into the remainder of the duct to the level of the gland. The anastomoses were then accomplished with interrupted split silk passed through the sheath on small French-eyed needles. The sheaths of the muscles were united with fine chromic catgut sutures, the deep layer of the superficial fascia with fine plain catgut, and the skin with silk. No drainage was used.

Attention was now turned to the problem of anchoring the filiform bougie. Inspection of the oral mucous membrane showed a small rent about 1.5 cm. anterior to the parotid opening. The filiform was cut off to a proper length inside the mouth and the end was passed through this rent to make its appearance through a nick in the skin halfway between the vermilion border of the lip and the ala nasi. It was securely fastened to the skin by a silk suture (fig. 1).

The wound healed by first intention and the sutures and filiform bougie were removed on the seventh postoperative day. Clear saliva was observed to flow from the opening of Stensen's duct at that time and continues to do so at present, five months after operation. There has been no pain or swelling in the region of the gland. The scar of the main wound persists but it is impossible to detect the point of exit of the filiform bougie (fig. 2). There is no demonstrable weakness of any of the facial muscles.

The principles of the primary anastomosis of Stensen's duct appear to be established: (1) Repair the duct as soon as possible after the injury (certainly within eight hours), (2) use care in hemostasis, (3) insert a small ureteral catheter, a filiform bougie, a strand of silkworm gut or any other firm, pliable, sterilizable material which will not swell, which may be made to act as a dowel and seton and which may be anchored in place, (4) suture the sheath of the duct over this dowel with fine interrupted silk or catgut, and (5) close the wound anatomically without drainage.

The only feature that appears to offer any difficulty is the matter of fixation of the dowel. It seems to us important that the dowel should be under control and that it should not come out prematurely. Whether or not it has a lumen is of no consequence (Dickinson), since most of the saliva will pass down between the mucous membrane and the dowel anyway; but there would be considerable likelihood of obstruction to the duct by collections of blood, leukocytes and serum, and from pressure due to swelling of the cheek, if the supporting dowel should not be in place during the first four or five days. Leakage at the suture line leads to collection of saliva outside the duct, which, after removal through the skin of the cheek by means of a needle and syringe, may or may not result in a cutaneous fistula. In a controlled inlying dowel there lies safety.

The two methods of choice for the fixation, it seems to us, are, first, to tie the dowel to a tooth or, second, to pass it through the cheek and suture it to the skin. It might be objected that the latter method opens up fresh tissues to the possibility of infection. However, the dowel acts as its own drain, and the likelihood of complications from this source is, we are sure, remote. The point of exit of the dowel through the skin leaves little or no trace after the tiny crust comes off. For an edentulous individual or for a child or adult who will be troubled by the end of the dowel in the mouth, the plan of exteriorization and suturing to the skin is preferable. A stitch passed through the opening of Stensen's duct and tied about the dowel cuts through rapidly and does not provide certain fixation. The stitch in this position also results in local edema and a tendency toward obstruction to the flow of saliva. The dowel should lie freely in the duct as in the two methods of fixation which are recommended.

SUMMARY

The principles of primary repair bear repeating: (1) Operate as soon as possible after the injury, (2) use care in hemostasis, (3) insert a small ureteral catheter, filiform bougie, a strand of silkworm gut or any other firm, pliable, sterilizable material that will not swell, which may be made to act as a dowel and seton and which may be anchored in place, (4) suture the sheath of the duct with fine, interrupted silk or catgut, and (5) close the wound anatomically without drainage.

Fixation of the dowel is important and is best accomplished either by, first, tying it with silk to the upper canine tooth or, second, as we have suggested, passing it through the cheek and suturing it to the skin.

Special Articles

PROSTATIC HYPERTROPHY

CLINICAL LECTURE AT CLEVELAND SESSION

N. G. ALCOCK, M.D.

IOWA CITY

The subject of treatment of hypertrophy of the prostate can be reduced to very simple terms by putting down at the outset the three following statements as facts and letting them form a basis for a discussion. I doubt whether there will be any one who will dispute them:

1. The enlarged prostate produces trouble only when it causes obstruction at the bladder neck.
2. The degree of obstruction is not in relation to the size of the gland but rather to the location and arrangement of the enlarged portion.
3. Obstruction is caused not by the entire enlarged portion but by enlargement in certain localities and certain directions.

In figure 1 is shown a cystogram of an enormously enlarged prostate that is causing the patient no trouble whatever, while figure 2 shows a comparatively small gland that is producing almost the maximum trouble.

If the foregoing statements are true, it follows that the solution of the prostate problem is (1) to overcome bladder neck obstruction and (2) to restore as nearly as possible bladder function.

In any type of prostate surgery, not all the results are perfect even though the patient lives. Frequently some of the damage caused by the obstruction is permanent, and even though the obstruction is relieved and bladder function reestablished this permanent damage remains. Furthermore, surgery of the prostate is in a way plastic and in any plastic surgery on any organ instituted to reestablish function there will be varying degrees of perfection in the results. Therefore common sense indicates that not all the results of prostatectomy or resection will be perfect.

There are four methods of overcoming bladder neck obstruction:

1. The use of the urethral catheter either by intermittent catheterization or by the indwelling catheter. This overcomes the obstruction by putting a siphon over the dam but at best it is only temporary and it does not restore normal bladder function.

Read before the General Scientific Meeting at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 11, 1934.

2. The permanent suprapubic drain overcomes the obstruction by diverting the flow of urine through a new channel, but it is inconvenient and unsatisfactory and more or less temporary and does not restore bladder function.

These two methods can be used temporarily to overcome the obstruction and to repair temporary damage that the obstruction has produced. These are the essential features of all preoperative treatment.

3. Surgical prostatectomy, either suprapubic or perineal, solves the problem by removing all the enlarged or hypertrophied

Fig. 1.—Prostatic hypertrophy. Patient, aged 77, complained of pain in the lumbar region when doing heavy work. Family physician found a very large prostate on rectal examination and raised the question as to the prostate being the cause of the pain. No nocturia. No day frequency. No difficulty. Good stream. No residual. Urine normal. Kidney function normal. Prostate by rectum and by cysto-urethrogram shown to be very large but was producing no obstruction and, therefore, no operation was indicated. Back pain explained on basis of arthritis.

portions of the gland. It overcomes the obstruction and it restores bladder function.

So much has already been written about prostatectomy that no further discussion of that particular subject is needed here.

4. Transurethral prostatic resection, on the other hand, solves the problem, first, by determining accurately what portion, or

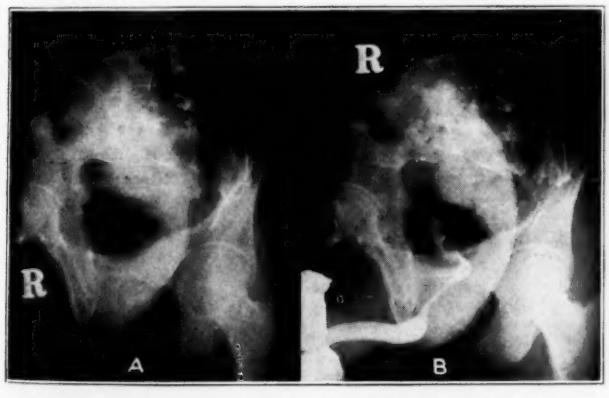

Fig. 2.—Prostatic hypertrophy in patient aged 67. Symptoms of bladder neck obstruction for two years. Much difficulty and frequency and residual urine of 500 cc. loaded with pus. Prostate by rectum comparatively small and not more than a 1 on scale of 1, 2, 3, 4. Cystogram and urethrogram (*A* and *B*) show small intravesical median lobe with typical and marked deformity of the bladder neck and prostatic urethra. Here is a very small degree of hypertrophy causing almost the maximum degree of obstruction. Resection indicated and done with satisfactory result.

portions, of the gland are causing obstruction, and, secondly, by removing accurately only those portions. It overcomes the obstruction and it restores bladder function.

The explanation of the recent popularity of transurethral prostatic resection is simple. An instrument that will enable the operator "to determine accurately what portion, or portions, of the gland are causing the obstruction and to remove accurately only those portions must be one that gives the operator (1) good vision, (2) facility to control hemorrhage perfectly, and (3) to remove accurately an adequate amount of tissue."

The Stearns-Davis resectoscope was the first instrument that approached these requirements, and the Stearns-McCarthy instrument is an improvement on the Stearns-Davis.

There are two things that have made transurethral resection possible. Different lens systems have been adapted to the resectoscope, so that excellent vision is possible. Second, there have been developed high frequency machines that give currents that will control hemorrhage and cut tissue.

Good vision with the resectoscope is possible. By means of the three lens systems — foroblique, the indirect and the retroversion—the gland can be viewed

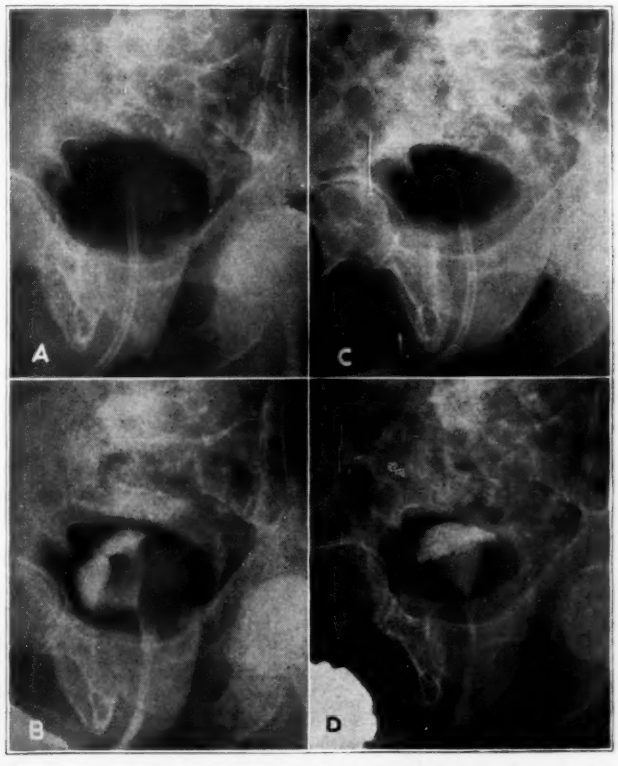

Fig. 3.—Prostatic hypertrophy in patient aged 84. Symptoms for five years. Complete retention ten times. Catheter almost daily for eight weeks. Residual urine 700 cc., loaded with pus. Advanced arteriosclerosis. Very weak and feeble old man. Poor renal function. Very poor operative risk. Very large, 3, prostate by rectum. Cystogram and urethrogram (*A* and *B*) show very large intravesical median and lateral lobes with considerable intra-urethral enlargement of the laterals. Resected and 30 Gm. of tissue removed. *C* and *D* show cystogram and urethrogram twelve days after resection. Note the absence of the filling defect at the bladder neck and the change in the prostatic urethra. At this time the patient was voiding easily and without difficulty and with residual urine of less than 15 cc. Much less pyuria.

from every possible angle and direction. This observation when combined and coordinated with the accurate results of examination by means of the preoperative air cystogram and the urethrogram with jelly made of iodized oil gives one even a more accurate idea of the topography of the bladder neck and prostatic urethra than one could possibly get with the bladder cut wide open in front of one. This excellent vision plus experience — and I emphasize experience — enables one accurately to size up the situation and determine what portion or portions of the gland are causing the obstruction and, therefore, what tissue must be removed. This excellent vision plus the adequate high frequency

current enables one to make every cut with the greatest degree of accuracy, to control all bleeding as one goes along, and to do the entire operation under the eye.

I doubt whether there are any who will dispute the statement that it is now pretty well established that the modern resectoscope does give one the means of doing accurately what one is supposed to do with it.

The first question that arises is this: How much tissue should be removed? This is easy to answer: the part or parts that are causing the obstruction should

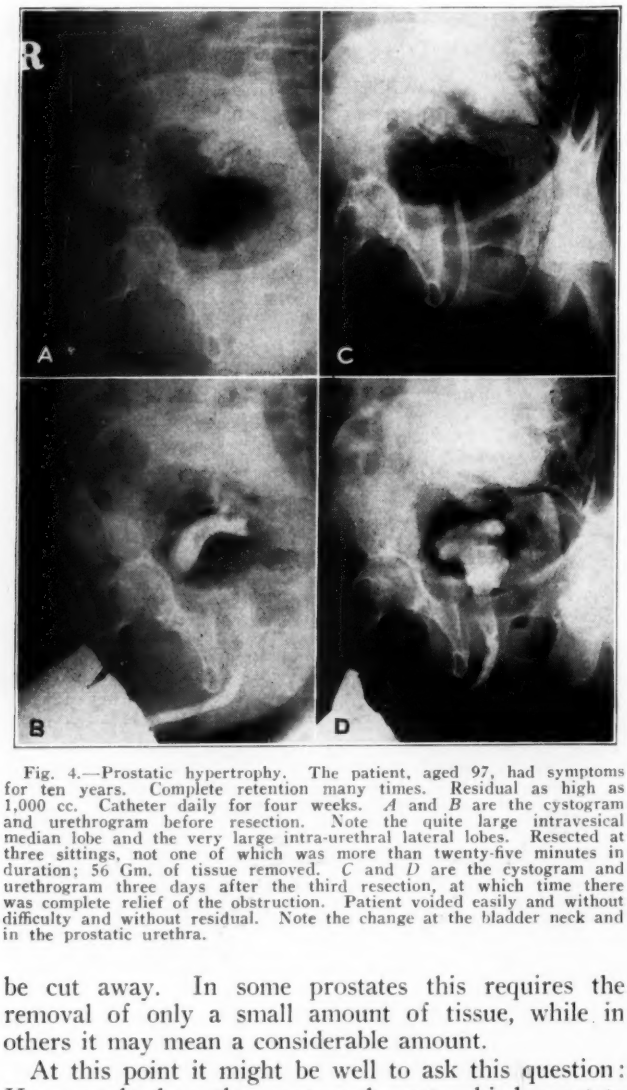

Fig. 4.—Prostatic hypertrophy. The patient, aged 97, had symptoms for ten years. Complete retention many times. Residual as high as 1,000 cc. Catheter daily for four weeks. *A* and *B* are the cystogram and urethrogram before resection. Note the quite large intravesical median lobe and the very large intra-urethral lateral lobes. Resected at three sittings, not one of which was more than twenty-five minutes in duration; 56 Gm. of tissue removed. *C* and *D* are the cystogram and urethrogram three days after the third resection, at which time there was complete relief of the obstruction. Patient voided easily and without difficulty and without residual. Note the change at the bladder neck and in the prostatic urethra.

be cut away. In some prostates this requires the removal of only a small amount of tissue, while in others it may mean a considerable amount.

At this point it might be well to ask this question: How much does the average hypertrophied prostate that is removed surgically actually weigh? These prostates vary greatly in size. A gland the size of a golf ball weighs 43 Gm., one the size of a hen's egg weighs 51 Gm., one the size of a lemon weighs 140 Gm., and one the size of an orange weighs 314 Gm. In the records of my own prostatectomies the weight of the gland removed was recorded in each of 433 cases; the largest was 270 Gm. and the average weight of the 433 was 38.3 Gm. Therefore, if with the resectoscope one removes from 15 to 35 Gm. one is removing a very large part of the average gland. In 85 per cent of the first hundred cases that I did by the resection method I removed less than 10 Gm. of tissue; in the last hundred—the eighth hundred—more than 10 Gm. was removed in 90 per cent of the cases, and in only 2 per cent was less than 5 Gm. removed. I know from my experience that it is absolutely essential to remove an adequate amount of tissue and I find as my experience has grown that I am removing larger and larger amounts of the gland. The largest amount removed at one sitting was 54 Gm.; the largest amount removed from one patient was 134 Gm. in three sittings. In the bulk of the cases now being done, from 15 to 35 Gm. is removed. Usually it is not particularly difficult with experience to remove from 25 to 40 Gm. at one sitting. In the beginning the time consumed at a resection was from an hour and a half to two hours and a half. At present the patient is seldom kept on the table more than fifty minutes and in the average case the resection is completed in from twenty to twenty-five minutes. In general it may be said that from one third to three fourths of the gland is removed.

Figures 3, 4 and 5 represent preoperative and postoperative cysto-urethrograms in cases in which resection has been done, and an inspection of these pictures I think will demonstrate that adequate amounts of tissue can be removed.

The tables give the results in numbers and percentage of 600 consecutive resection cases and 600 consecutive prostatectomies that I have done myself. This is simply a repetition of the tabulated results that I presented before the American Medical Association a year ago, with the addition of 200 cases, and these tables add nothing to what the former ones showed. These 600

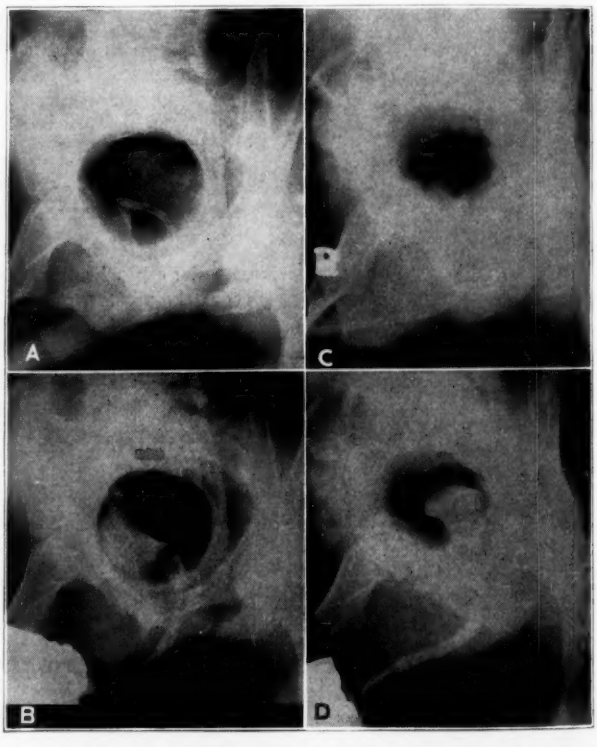

Fig. 5.—Prostatic hypertrophy. The patient, aged 80, had symptoms for eight years. Complete retention eight times. Catheter four times daily for six weeks. Gross hematuria with clots for four weeks. Much loss of blood; hemoglobin 50 per cent. Much pyuria. Condition very poor. The preoperative cysto-urethrogram (*A* and *B*) shows an enormous intravesical median lobe with almost as much intra-urethral enlargement of the laterals. Resected in three sittings at six day intervals, with removal of 33, 51 and 50 Gm., respectively, a total of 134 Gm. *C* and *D* represent the cystogram and urethrogram eight days after the third resection. Note that the intravesical median lobe is gone and that the prostatic urethra is large and straight. Patient voids easily and freely. Residual 50 cc. and four days later there was none. Only slight pyuria. No hematuria since first resection. Hemoglobin 90 per cent. General condition much improved.

resections are the cases done up to December 1933. Since then 200 additional cases have been added to this list. Again I wish to emphasize the fact that in this

series there has been no selection of cases and that it does not include bars, contractures and small median lobes, or so-called prophylactic prostatectomies. In every one of these 600 cases I would have formerly recommended a prostatectomy. There is this difference, however, even in these two series. It will be noted that the average age of the prostatectomy patients was 66,

TABLE 1.—*General Summary*

	Number		Percentage	
	Resection	Prostatectomy	Resection	Prostatectomy
Total	600	600		
Benign	490	557	81.7	92.8
Malignant	110	43	18.3	7.2
Ages				
90-100	2	0	0.3	0.0
80- 90	43	20	7.2	3.3
70- 80	333	202	55.5	33.7
60- 70	200	305	33.3	50.9
50- 60	22	68	3.7	11.3
40- 50	0	5	0.0	0.8
Over 70	378	222	63.0	37.0
Under 70	222	378	37.0	63.0
Average age	72.8	66.3		
Hospital days	16.3	71.4		
Deaths	28	134	4.6	22.3

while that of the patients in whom resection was done was just about 73, and if I should add to this list the additional 200 cases that I have done since this table was made it brings the average age of resection patients to over 73 years. The average age of any series of prostate patients is quite a fair index as to the operative risk of the individual patient. It will be noted that 63 per cent of the resection patients were over 70 years of age and that only a very small percentage of them were under the age of 60. It has been my observation that there are very few men under the age of 60 who really need a prostatectomy or a prostatic resection. The youngest patient was 55 and the oldest 97.

The second thing that stands out is the difference in hospitalization. The prostatectomy patients were in the hospital for an average of seventy-one days; the resection patients were in for an average of sixteen and a fraction days and this sixteen and a fraction days includes the preoperative and postoperative period and it covers the entire period that these patients are under our observation. When they come to us they go immediately into the hospital and when they leave the hospital they leave us entirely and go back to their home physicians.

The third thing to which I wish to call attention is the difference in the mortality rate. In the prostatectomies the mortality rate is 22.3 per cent, while in the resections it was 4.6 per cent. It has been said that this 22.3 per cent mortality for prostatectomies is scandalous and I will admit the allegation; and yet when one considers that the bulk of these cases were in the charity service it is well within the range of the mortality rate that goes with prostatectomies in similar services and, in fact, it is lower than that reported from several charity services. Furthermore, I believe that 20 per cent is nearer the mortality rate of prostatectomies the country over than is the rate that is found in series reported in the literature. I have also shown that, by the manipulation of figures such as dropping out those who died following the first operation and also dropping out the carcinoma cases, this 22.3 per cent mortality could be reduced to something like 5 per cent; but there is only one way of determining mortality, and that is the question as to whether the patient is alive or dead. In the resection cases the mortality rate in the first hundred cases was 15 per cent. Not all of these deaths were due directly or indirectly to the resection, but the patients died just the same. As experience has grown it will be noted that the mortality rate has consistently dropped. For the additional 200 cases done since this tabulation was made, the mortality rate is less than 2 per cent. The mortality rate for the last 500 cases done is 1.4 per cent and the average age of the dead patients in this group is over 78 years.

These tabulations give the results that can be set down in numbers and percentage but they do not give the true picture either pro or con. I believe that the only true picture that one can get of the difference in these two methods is that which one sees in his everyday experience in the hospital wards. I cannot put down in tabulated form or even in words the vast difference in the pictures of the two situations—all in favor of resection. I am convinced that resection carries with it much less risk to the patient and gives immediate postoperative results that are as good if not much better.

What, then, are the ultimate results? There are two things that stand out against resection: one is infection and the other pertains to functional result.

Infection is a much more common condition following resection than following prostatectomy. I think that no one will dispute that. In my patients that have died, infection has played the major rôle. Hemorrhage has had nothing whatever to do with any mortality. But even with this bad element the patients do get well. And a mortality of 1.4 per cent for the last 500 does not speak for the severity of this infection.

In the beginning, one of the most disturbing features in the functional result was the distressing frequency

TABLE 2.—*Mortality*

	Number		Percentage	
	Resection	Prostatectomy	Resection	Prostatectomy
Total	28	134	4.6	22.3
Benign	19	112	3.8	20.1
Malignant	9	22	8.1	51.1
Posteystostomy	..	90	...	13.7
Postprostatectomy	..	44	...	8.6
Ages				
90-100	0	0		
80- 90	4	7	9.3	35.0
70- 80	18	57	5.4	28.2
60- 70	6	59	3.0	19.3
50- 60	0	11	0.0	16.2
1st 100	15	19	15.0	19.0
2d 100	4	22	4.0	22.0
3d 100	6	28	6.0	28.0
4th 100	1	28	1.0	28.0
5th 100	2	17	2.0	17.0
6th 100	0	20	0.0	20.0
Last 500	13	115	2.6	23.0
Last 400	9	93	2.2	23.2
Last 300	3	65	1.0	21.6
Last 200	2	37	1.0	18.5
Last 100	0	20	0.0	20.0
Average age	75.7	68.1		

of urination that many of these resection cases showed. In practically all of them there was considerable of it immediately following the operation and in many it continued for weeks and months. In some of these earlier cases it was so great that I considered the results very unsatisfactory but in a vast majority of them the condition eventually disappeared. In some of them the removal of additional tissue corrected it. In the later

cases, and particularly since I have been removing larger and larger amounts of tissue, this phenomenon has been of minor importance. All in all it is quite insignificant.

I do not doubt that some of the patients in whom I have performed resection have had, or will have, prostatectomies. I know of only one so far who has had his prostate removed. I do not doubt that if I could follow every one of them I would find probably several who have had this experience. Several of the earlier patients have returned for additional resection but I do not feel that this is anything against resection because I am conscious of the fact that at least the first 200 cases were not done as well as they might have been done. I do not doubt that some of the patients who are now being operated on and operated on well will come back later on for additional resection, but I am sure as I watch these cases that the number is going to be very small. Of course, some of them will come back just as some of the prostate patients had to be prostatectomized a second time.

Now the all important question arises as to what cases should be treated by resection and what cases should not. A year ago I said that there were two small groups of cases in which I felt that resections should not and could not be done. One group was those in which the instrument could not be introduced into the bladder. That still holds true, of course. This is a very small group. In a series of over 800 cases there have been five such cases. The second group that I said a year ago was not amenable to resection was those in which the enlargement of the prostate was considerable and was confined to the space between the two sphincter muscles. I believe now that resection can be done in those cases. I am therefore willing to go on record in saying that I believe it is possible to perform resection in any case in which the instrument can be introduced into the bladder.

Whether a man shall do resections or prostatectomies depends entirely on which method gives him the best results, and the only way that he can determine this is by looking his results squarely in the face and being guided by what he sees and not by what some one else does. Therefore the question of doing resections or prostatectomies is purely a personal one. The results that one gets in resections depend almost entirely on how well the actual resection job is done and this is in turn determined largely by the amount of experience that the operator has had. This is, I think, the most serious drawback to resection. It is a thing that cannot be taught and can be learned only by hard, tedious experience. Therefore, if a man is going to become adept at doing it he must have access to a large volume of material, and the number of men who have access to such a large volume of material is comparatively small. Therefore, resection is certainly not the operation for the occasional operator. In my own experience it took at least 200 cases crowded into a comparatively short period of time to teach me how to do them only fairly well.

There is one thing more that might be said: I believe that in the end it is going to be found that the question as to whether resections or prostatectomies are going to be done will be determined not by the general surgeon or the urologic surgeon but by the home physician. He is the man who sees the ultimate and final result and he is the one that is going to determine which of these operations his patients are going to have.

GLANDULAR PHYSIOLOGY AND THERAPY

THE POSTERIOR HYPOPHYSIS

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NOTE.—*This article and the articles in the previous issues of* THE JOURNAL *are part of a series published under the auspices of the Council on Pharmacy and Chemistry. Other articles will appear in succeeding issues of* THE JOURNAL. *When completed, this series will be published in book form.*—ED.

The primary structural elements of the posterior lobe of the hypophysis are the neuroglial cells, the pituicytes and the nerve fibers. The neuroglial cells resemble those found elsewhere in the central nervous system. In the pituitary some of them have become differentiated to form pituicytes,[1] highly branched cells that have granules in the cytoplasm. The presence and significance of nerve fibers in the posterior lobe are still an open question.

ORIGIN AND PATH OF ESCAPE OF THE SECRETION

None of these structures, with the exception perhaps of the pituicytes, are regarded as secreting elements in the ordinary sense.

Many investigators believe that the secretion is formed by cells of the pars intermedia, which envelop and interdigitate the neural lobe to a greater or less extent, depending on the species.[2] This view is not in harmony with newer studies, which show that extracts from the neural lobe of the chick[3] and whale possess pressor, oxytocic and antidiuretic properties, although in these animals the structure of the neural lobe is such that the possible admixture of pars intermedia in the extract is excluded. Another widely accepted hypothesis is that this secretion is derived from the Herring bodies.[4] These acellular structural elements, irregular in number, size, shape, staining capacity and distribution, are considered to be a secretion antecedent migrating from cellular derivates of the pars intermedia into the lumen of the third ventricle; hence the alleged presence of posterior lobe secretion in the cerebrospinal fluid. Experiments now in progress throw doubt on the reality of these Herring bodies and indicate that they may be fixation artefacts. These studies tend to show that the neuroglial tissue is infiltrated by a homogeneous stainable material which on fixation is precipitated out in the form of aggregates (Herring bodies). In addition, the most refined assay methods have failed to reveal the presence of the posterior lobe secretion in the cerebrospinal fluid.[5]

The simplest explanation not inconsistent with the facts is that the posterior lobe secretion is elaborated by the intrinsic elements of the lobe itself and enters

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directly into the general circulation by the blood channels recently described by Popa and Fielding.[6]

It is generally conceded that the cells of the pars intermedia elaborate the melanophore expanding hormone, or intermedin, which is discussed in a separate paper by Professor Zondek.[7]

THE CHEMISTRY OF POSTERIOR LOBE EXTRACTS

The active constituents present in posterior lobe extracts, although quite suitable for clinical work, have not as yet been isolated as chemical individuals. Abel and his associates[8] have isolated a tartrate of high purity possessing pressor, oxytocic and antidiuretic properties. Kamm and his associates,[9] and more recently Stehle[10] and others, have separated from pituitary extracts two fractions, pitressin and pitocin, which have been fairly highly purified. Pitressin has pressor and antidiuretic properties, and some melanophore activity which decreases with purification and is not due to a hormone derived from the pressor and oxytocic principles but to a separate entity elaborated by the cells of the pars intermedia.[7] Pitocin has mainly oxytocic activity; its other effects are due to impurities. Gulland and Newton[11] have succeeded in making very potent preparations of this substance. Many of the problems relating to both the chemistry and the physiologic actions of these substances must await final solution until the "mother substance" of Abel,[12] or the fractions derived therefrom or existing separately,[9] are obtained as chemically pure compounds. These should be of astounding potency, judging from the high degree of physiologic activity exhibited by impure preparations.

At present there is available an international pituitary powder against which all commercial preparations are standardized. The unit of pituitary is the activity contained in 0.5 mg. of standard pituitary powder (U. S. P. X).

PHYSIOLOGIC EFFECTS

Posterior pituitary extract (solution of pituitary, U. S. P. X) exerts striking physiologic actions on the cardiovascular, respiratory and renal systems, on smooth muscle, on certain glandular structures and on the metabolism. The separation of pitressin and pitocin from pituitary extracts necessitated apportioning these multiple pharmacodynamic actions. Pitressin elicits the cardiovascular, respiratory, renal, intestinal and certain metabolic effects, and pitocin the oxytocic action. Both substances (and solution of pituitary also)[13] cause hyperglycemia and act as antagonists to insulin. Since neither substance has been prepared free of the other, there is some overlapping of the physiologic effects that they produce.

CARDIOVASCULAR AND METABOLIC EFFECTS

In man, therapeutic doses of either solution of pituitary U. S. P. or of pitressin given intramuscularly or subcutaneously do not cause any significant rise of blood pressure in spite of the marked pallor, which would lead one to infer that the arterial tension is elevated.[14] There is a decided but brief fall in pulse rate, oxygen consumption and cardiac output, which is followed by a more prolonged rise.[15] Pitocin causes only a slight increase in oxygen consumption and negligible changes in the circulation. The decreased cardiac output after solution of pituitary and pitressin may be due to a reflex initiated by the threatened increase in blood pressure that would result from the constriction of the cutaneous vessels. The subsequent elevation in cardiac output and pulse rate is due to the accumulation of catabolites during the period of decreased oxygen consumption after administration of these drugs. This accumulation of catabolites causes a condition of "oxygen debt," the liquidation of which is manifested in a later increase in oxygen consumption (chart 1).

In trained unanesthetized dogs the effects of these drugs in larger doses per kilogram of body weight,

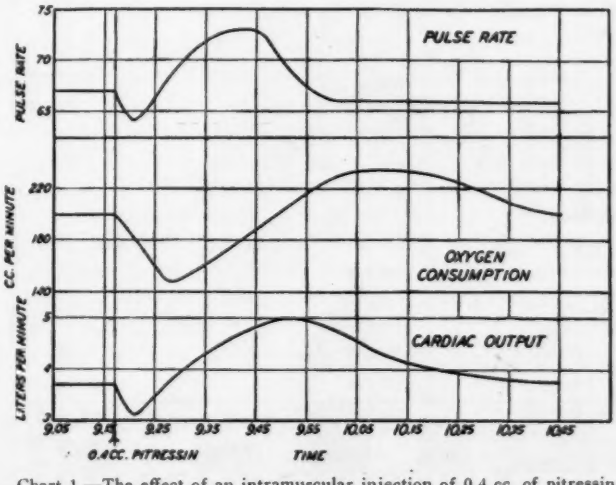

Chart 1.—The effect of an intramuscular injection of 0.4 cc. of pitressin into a normal man. The pulse rate and cardiac output are decreased below the normal for a brief period, followed by an increase of more prolonged duration. Similar changes occur in the oxygen consumption, except that both the decrease and the increase are more prolonged than in the case of the cardiac functions.

given intravenously, are more intense but essentially similar to those found in man, except for the blood pressure.[16] For a brief period the venous blood approaches an arterial character, owing to the failure of the body to take up oxygen; during this period the oxygen consumption falls markedly, lactic acid accumulates in the tissues (chart 2) and there is a diminished blood flow,[17] as measured with a modified Rein stromuhr.

The blood pressure response in experimental animals to solution of pituitary and to pitressin is determined by several factors such as dosage, time interval between injections, type and depth of anesthesia and species of

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experimental subject. Small doses given to normal anesthetized dogs or cats cause a sharp rise of pressure due to peripheral vasoconstriction. Repeated doses give a lessened response, and tolerance is easily acquired. Larger doses given to intact animals with or without anesthesia [18] may cause a fall in pressure followed by a rise. The depressor effect is due to coronary constriction.[19] In experiments in which cardiac effects are eliminated by the use of the Gibbs artificial heart, large doses of solution of pituitary or pitressin invariably cause a sharp rise of pressure, and subsequent injections produce little or no effect.[20] Such experiments indicate that the depressor action is cardiac and that the tolerance factor is vested in the peripheral structures.

RESPIRATORY EFFECTS

The respiratory changes are secondary to the circulatory effects. In unanesthetized animals there is a quickening of the respiratory rate, interspersed with periods of cessation of breathing.[8]

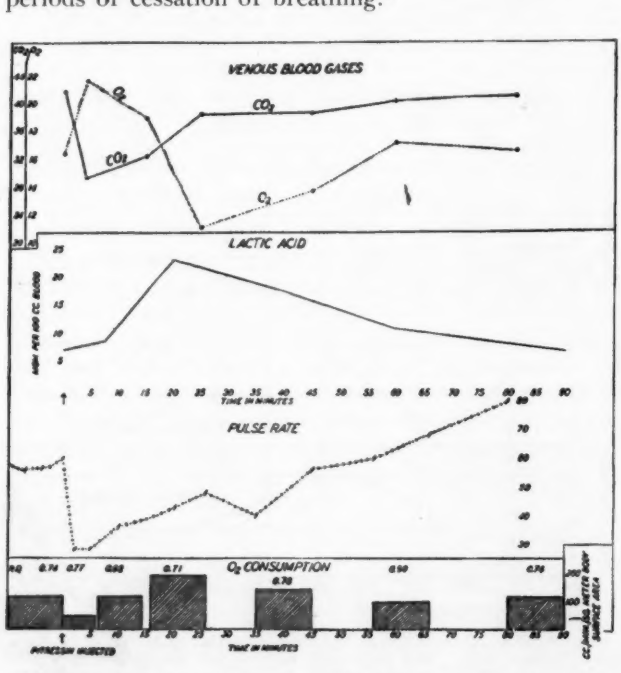

Chart 2.—The effect of intravenous injections of pitressin (from 0.4 to 0.5 cc.) on the venous blood gases, lactic acid, pulse rate and carbon dioxide consumption of a normal dog weighing 16 Kg.

RENAL EFFECTS: DIURETIC-ANTIDIURETIC ACTION

This property is associated with the pressor fraction of the extracts; the positive results obtained with pitocin are due to contamination of the latter with small amounts of the pressor principle. Therapeutic doses of either solution of pituitary or pitressin cause a marked antidiuretic effect, lasting some hours, in patients with diabetes insipidus or in normal subjects who have previously ingested water by mouth. This action is definitely an effect on the kidney [21] and is thought to be due to an increased reabsorption of water by certain cells of the tubule.

A diuretic effect is best elicited with small doses injected into anesthetized rabbits rendered diuretic either by green-feeding, by rapid intravenous infusion of isotonic sucrose, or by means of phlorhizin. Unanesthetized animals with low urine flow may also respond in this way. This diuresis may be due to an increased glomerular filtration or to a decreased reabsorption of water by the tubule.

OXYTOCIC EFFECTS

A number of workers (Knaus,[22] Robson [23] and their respective co-workers, and Reynolds,[24] Moir [25] and others) have made it clear by in vitro and in vivo experiments on the uterus that the nature and the degree of the reaction of the uterine musculature to posterior lobe preparations depend on (*a*) species of the animal, (*b*) the phase of the menstrual or estrous cycle, (*c*) whether the uterus is gravid or nongravid, (*d*) the stage of pregnancy—early or late, during parturition, or in the puerperium. Some of the variations in the uterine response become more intelligible when viewed in the light of the newer researches dealing with the effect on the uterus of the estrogenic and corpus luteum hormones and their interplay with the hormones of the pituitary from both the anterior and the posterior lobes. Briefly stated, the reaction of the uterine muscle to pituitary preparations is markedly affected by the nature of that ovarian, placental or anterior pituitary hormone whose influence is preponderant at the time of injection. During the early stages of pregnancy the human uterus does not react to pitocin, probably because of the inhibitory effect of the luteal secretion. It does, however, respond to small doses of pitressin; whether this is an effect of the drug per se or is due to mechanical factors remains a mooted point. Later in the gestation period the reactivity to pitocin returns, and during parturition the uterus is very reactive to this substance and also to solution of pituitary. It is at this time that these drugs are mainly used by obstetricians. The influence of theelin in rendering the uterus more highly reactive comes into play here. In the puerperium, however, while involution is in progress, pitocin evokes little or no response. The excised horns of the virgin guinea-pig's uterus are very reactive to solution of pituitary and to pitocin; this action forms the basis of the official method of assay of these drugs.

ACTION ON INTESTINE

Variations in species of animals, in technic and in the portion of the gastro-intestinal tract used account for the lack of concordant results obtained by different workers with these drugs on the intestine. Strips of rat's ileum are very reactive to pitressin, and this has been suggested as a method of assay for this drug.[26] The constrictor effects are due to pitressin.[27]

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26. Simon.[5]

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CLINICAL USES

Conservative obstetricians restrict the administration of posterior pituitary preparations largely to the treatment of postpartum hemorrhage and to cases of incomplete abortion in which repeated moderate doses (0.5 cc.) frequently bring about spontaneous completion. Pituitary extracts are employed at times for the induction of labor; for example, intranasal application or the cautious use of small intramuscular doses following the administration of castor oil and quinine; the latter procedure, however, is occasionally fraught with danger to the child. Intranasal applications are often an aid in producing satisfactory uterine contractions in cases of primary or secondary inertia. It is the practice in many clinics to use solution of pituitary intramuscularly immediately after the birth of the child to hasten separation of the placenta and to decrease bleeding during the third stage. Such a procedure, however, may produce an hour-glass contraction of the uterus and thus increase the incidence of manual removal of the placenta. In rare cases intramuscular injections of the drug will not overcome atony and in such instances excellent results are obtained by the intravenous use of from 3 to 5 minims (0.2 to 0.3 cc.). No significant alterations of blood pressure or other untoward effects following solution of pituitary intramuscularly have been noted in the obstetric clinic of the Johns Hopkins Hospital and hence its use seems safe in the toxemias of pregnancy. In addition, no clinical advantage resulted from the employment of pitocin; in fact, in the Hopkins clinic stronger contraction of the uterus was elicited with solution of pituitary than with pitocin. Contrary results are reported from other clinics.

Solution of pituitary and pitressin are also employed to allay postoperative abdominal distention and in the treatment of diabetes insipidus. Posterior pituitary preparations may also be used to overcome the effects of an overdose of insulin, since the two are antagonistic.

DISEASES ASCRIBED TO HYPERSECRETION

In recent years, attempts have been made to explain some of the baffling and serious diseases, such as the toxemias of pregnancy, especially eclampsia, and angina pectoris, on the basis of an excess secretion by the posterior lobe.[28] The data on which these claims rest are not very convincing and more recent experiments have not substantiated the earlier work.[29]

CONCLUSION

It seems that in spite of the huge volume of work on the posterior lobe secretion one cannot assign with certainty any specific physiologic rôle in the animal economy to this potent autopharmacologic agent. Possibly the pressor component acts as an efficient regulator of the exchange of metabolites between the blood and the tissues (capillary hormone) and exercises a renal function, and the oxytocic portion may function during parturition to quicken and render more effective the uterine contractions, which result in the expulsion of the products of conception.[30]

28. Anselmino, K. J.; Hoffmann, F., and Kennedy, W. P.: The Relation of Hyperfunction of the Posterior Lobe of the Hypophysis to Eclampsia and Nephropathy of Pregnancy, Edinburgh M. J. **39**: 376 (June) 1932.

29. Byrom, F. B., and Wilson, C.: The Alleged Pituitary Origin of Eclampsia and Preeclamptic Toxemias of Pregnancy, Quart. J. Med. **3**: 361 (July) 1934.

30. General references:
Geiling, E. M. K.: The Pituitary Body, Physiol. Rev. **6**: 62, 1926.
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Therapeutics

THE THERAPEUTICS OF THE COOK COUNTY HOSPITAL

EDITED BY BERNARD FANTUS, M.D.
CHICAGO

NOTE.—*In their elaboration, these articles are submitted to the members of the attending staff of the Cook County Hospital by the director of therapeutics, Dr. Bernard Fantus. The views expressed by various members are incorporated in the final draft for publication. The articles will be continued from time to time in these columns. When completed, the series will be published in book form.*—ED.

THERAPY OF FUSOSPIROCHETOSIS (FUSOSPIRILLOSIS)

Correct diagnosis is of great importance, because treatment is almost specific. Two special localizations of the infection are discussed here: oropharyngeal and bronchopulmonary. For localization on genitals, see Therapy of Chancroid and Bubo.

OROPHARYNGEAL FUSOSPIROCHETOSIS (VINCENT'S ANGINA, VINCENT'S STOMATITIS, TRENCH MOUTH)

Diagnosis.—Single or multiple, grayish white, foul smelling, necrotic patches are present in the mouth or throat, which are easily removed, leaving a bleeding ulcer with a characteristically slight zone of redness and usually little or no glandular reaction in the neck. The feeling of general well being is often in marked contrast to the local pathologic changes. Glandular involvement and fever may, however, be present. The condition must be differentiated from diphtheria and syphilis; also from scurvy, granulopenic angina, and mercurial stomatitis. It accompanies sprue or psilosis.

The finding of the spirilla and fusiform bacilli easily stained by basic dyes, such as gentian violet, is not conclusively diagnostic, because such organisms occur in any dirty mouth. They are constant in pyorrhea pockets. They may therefore be found in diphtheria and in any other of the conditions requiring differentiation. Hence the absence of the characteristic manifestations of the diseases with which it may be confused is important for diagnosis.

Prophylaxis.—1. As this is clearly a communicable disease, commonly conveyed by eating and drinking utensils, proper disinfection of these and daily mouth hygiene as well as dental asepsis are mandatory. Soap has a definitely spirillicidal effect; hence its presence in a dentifrice is of prophylactic value.

2. Improvement of general resistance is also of prophylactic as well as curative importance, because Vincent's spirochetes are probably pathogenic for man only when either local or general resistance is low.

Treatment.—1. Oxidizing agents are efficient because lowered oxygen tension is a necessary factor for the development of these anaerobic organisms.

(*a*) Solution of Hydrogen Dioxide, diluted with an equal amount of warm water, should be used for the removal of the necrotic tissue and for exposing the infected area to direct treatment with any other agent.

(*b*) Sodium perborate made into a thick paste with water is spread over the ulcerated area and all over the teeth and kept in the mouth for about five minutes; then the mouth may be rinsed with warm water. While

the patient may be trained to do this, results are more reliable when the treatment is carried out by the physician. In addition, a 2 per cent solution of sodium perborate may be used as a mouth wash and gargle three times daily or even every hour. Sodium perborate is especially useful in the milder cases. Its solution must always be freshly prepared.

Sodium Perborate Aromatized

Gluside	0.01 Gm.
Oil of peppermint	0.60 cc.
Sodium perborate	30.0 Gm.

M. Label: Teaspoonful or two in tumblerful of warm water as mouth wash or gargle.

(*c*) Chromium trioxide may be employed as an alternative office procedure, for use most especially in the severer cases. Seven per cent solution of chromium trioxide is applied to the ulcers by means of cotton pledgets on stainless foil carriers, after the ulcers have been cleansed by hydrogen dioxide and dried and the mouth has been packed with gauze or cotton rolls. The chromic acid solution is permitted to dry, and the surface is covered with Compound Tincture of Benzoin, which retains the chromic acid in place for a longer time. A simpler method is to place crystals of chromium trioxide on the ulcers and then to give the patient a mouthful of Solution of Hydrogen Dioxide, which reacts with the chromium trioxide, forming a black substance that soon decomposes into chromic acid and nascent oxygen.

2. Neoarsphenamine displays its spirillicidal powers in this disease so definitely that it may be used alone or as a succedaneum to one of the foregoing methods. After cleansing with Solution of Hydrogen Dioxide and careful removal of the oxidizing agent and drying, a 10 per cent solution of neoarsphenamine in glycerin is thoroughly applied to the raw surfaces by means of cotton applicators once or even two or three times daily. It should remain in place for a few minutes before the patient is permitted to rinse his mouth. There is no harm in swallowing the excess neoarsphenamine. The glycerin solution keeps well. In the intervals between applications, the patient may use 2 per cent sodium perborate solution every hour.

If the condition proves obstinate, 0.3 Gm. of neoarsphenamine may, in addition, be injected intravenously at intervals of several days. In children, a daily dose of acetarsone (one fourth of the 0.25 Gm. tablet daily) dissolved in a tablespoonful of milk or of water is reported to give satisfactory results. For adults, one and one-half tablets daily are advocated.

Surgical work in the mouth, even scaling and polishing of the teeth, should not be undertaken until the acute symptoms have subsided.

General Therapy.—Smoking should be interdicted and a vitamin rich diet insisted on. Cathartics and analgesics may be administered as required.

BRONCHOPULMONARY FUSOSPIROCHETOSIS

Diagnosis.—In cases of cough with rather copious greenish brown expectoration possibly blood tinged and generally foul smelling, which may resemble that of tuberculosis or pulmonary abscess, the microscopic examination of the sputum (preferably collected by means of the bronchoscope so as to be uncontaminated by mouth secretion) will make the diagnosis of the type of infection, whose localization may be determined by physical and roentgen examination as bronchial or bronchiectatic, pneumonitic abscess, or gangrene.

Prophylaxis.—Oral hygiene should be employed.

Treatment.—1. Arsphenamine: The importance of the early recognition of this variety of infection lies in the fact that early cases respond to intensive arsphenamine therapy (see Therapy of Syphilis). Chronic lesions, especially if the abscess has acquired a fibrous capsule, are very stubborn.

2. Peroral Pulmonary Drainage: (*a*) As coughing acts as a powerful ally to ciliary action in drainage of the bronchial tract, nothing is more pernicious than to check it by means of opiates, including, of course, codeine, which should never be prescribed in any productive cough. An abundance of fluid and of an alkaline expectorant (see Therapy of Cough) is, on the other hand, likely to be helpful.

(*b*) Postural drainage is carried on by having the patient assume a head-down posture two or three times daily and accompany this by deep respirations, which are likely to provoke productive coughing: the patient selecting the times for this treatment when he feels the greatest inclination to cough. It might save him a great deal of coughing in the intervals, as well as favor healing.

(*c*) Bronchoscopic aspiration, at intervals of possibly a week or less, is likely to be a powerful adjunct.

3. Surgery: External drainage of suppurative foci may be considered in suitable cases of nontuberculous suppuration resisting the faithful use of the other methods of treatment. While pneumothorax and phrenicectomy have a large field of usefulness in suitable cases of pulmonary tuberculosis, they should generally not be applied to nontuberculous pulmonary suppuration.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

CEVITAMIC ACID.—Crystalline vitamin C, *laevo*-CH_2OH (CHOH) OCH COH : COHCO (introduced as ascorbic acid).—Cevitamic acid may be prepared from adrenal glands, citrus fruits, cabbage, paprika and other plant materials. It may also be prepared synthetically. It oxidizes on exposure to air and light and should be preserved in an oxygen-free atmosphere protected from light.

Actions and Uses: Cevitamic acid is indicated for prophylaxis and treatment of scurvy. Its use in caries, and in other conditions in which a deficiency of vitamin C may be a contributing factor, is not established.

Dosage: As a protective dose in infants, 0.01 Gm. (⅙ grain), corresponding to from 15 to 30 cc. of fresh orange juice; the dosage for use in treatment has not been established.

Cevitamic acid occurs as white or yellowish white, odorless, monoclinic crystals, often tabular—a few showing simple twinning. The optical properties are as follows: biaxial; negative; weakly pleochroic; birefringence—strong (0.239); optic angle (2 E) about 5 degrees; extinction generally parallel but in some sections inclined about 12 degrees; indexes of refraction: $\alpha = 1.466 \pm 0.002$, $\beta = 1.680 \pm 0.002$, $\gamma = 1.705 \pm 0.002$. It is freely soluble in water, soluble in alcohol and insoluble in chloroform and ether. It melts between 189 and 192 C.

The rotation [α] 25/D of cevitamic acid determined in a solution containing the equivalent of 10 Gm. in 100 cc. of the solution falls between +20.5 and +21.5.

To 1 cc. of a 2 per cent aqueous solution of cevitamic acid add 2 drops of sodium nitroprusside solution and make alkaline with tenth-normal sodium hydroxide solution: a blue color is produced that changes to green and then to red. Add 2 cc. of 2 per cent aqueous solution of cevitamic acid to 5 cc. of Fehling's solution: the Fehling's solution is slowly reduced in the cold.

Transfer about 0.1 Gm. of cevitamic acid, accurately weighed, to a beaker containing 100 cc. of cooled distilled water that has just previously been boiled, and 25 cc. of diluted sulphuric acid; titrate with tenth-normal iodine solution using starch as an indicator (1 cc. of tenth-normal iodine solution corresponds to 0.0088 Gm. of cevitamic acid): the iodine used corresponds to not less than 98 per cent cevitamic acid.

Transfer about 0.12 Gm. of cevitamic acid, accurately weighed, to a beaker; add 20 cc. of water and titrate with tenth-normal sodium hydroxide using phenolphthalein as an indicator: the alkali used is equivalent to not less than 99.5 per cent nor more than 100.5 per cent cevitamic acid.

Transfer about 0.1 Gm. of cevitamic acid, accurately weighed, to a wide-mouthed glass stoppered weighing bottle, dry in a vacuum over phosphorus pentoxide for eighteen hours: the loss is not greater than 0.3 per cent.

Transfer about 0.1 Gm. of cevitamic acid to a platinum dish, ignite to constant weight: the ash is negligible.

Cebione-Merck.—A brand of cevitamic acid-N. N. R., obtained from vegetable sources.

Merck & Co., Inc., New York, distributor. No U. S. patent. U. S. trademark 318,171.

Ampules Cebione-Merck, 0.1 Gm.
Tablets Cebione-Merck, 0.01 Gm.
Tablets Cebione-Merck, 0.05 Gm.

DIPHTHERIA TOXOID, ALUM PRECIPITATED (REFINED)

(See New and Nonofficial Remedies, 1934, p. 393).

Jensen-Salsbery Laboratories, Inc., Kansas City, Mo.

Diphtheria Toxoid, Alum Precipitated (Refined).—Prepared from diphtheria toxin having an M. L. D. value of 0.0025 cc. or less. The toxin is treated with formaldehyde until its toxicity is so reduced that five human doses will cause no local or general symptoms of diphtheria poisoning when injected subcutaneously into guinea-pigs. The toxoid is precipitated by the addition of not more than 2 per cent of potassium aluminum sulphate; the precipitate is washed with physiologic solution of sodium chloride and resuspended in a volume of physiologic solution of sodium chloride equivalent to the volume of the original toxoid. Merthiolate, 1: 10,000, is added as a preservative. The product is tested for antigenic potency according to the method prescribed by the National Institute of Heath: guinea-pigs weighing 500 Gm., given one human dose, must produce at the end of six weeks at least two units of diphtheria antitoxin in each cubic centimeter of blood.

Marketed in packages of 1 cc. (1 immunizing treatment) and in packages of ten 1 cc. vials (10 immunizing treatments).

Committee on Foods

THE COMMITTEE HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

RAYMOND HERTWIG, Secretary.

EXPRESSION OF APPRECIATION TO CONSULTANTS WHO HAVE ASSISTED THE COMMITTEE

During the past year a number of authorities in their respective scientific fields were consulted on questions of moment before the Committee arising out of its regular business. In recognition of the helpful cooperation and valuable assistance given, the Committee has voted to express publicly its appreciation by publishing the names of those who in this manner and without remuneration have gladly contributed of their time, experience and knowledge to the benefit of the Committee in its public welfare and health work.

The Committee is officially thanking the following who have served as consultants:

BALDRIDGE, CLARENCE W., M.D. (Deceased), Associate Professor, Theory and Practice of Medicine, University of Iowa.

BARGEN, J. A., M.D., Assistant Professor of Medicine, University of Minnesota.

BLACKFAN, KENNETH D., M.D., Professor of Pediatrics, Harvard University.

BOYD, JULIAN D., M.D., Associate Professor of Pediatrics, University of Iowa.

DARROW, D. C., M.D., Assistant Professor of Pediatrics, Yale University.

ELIOT, MARTHA, M.D., Assistant Director, Children's Bureau, Washington, D. C.

FISHER, HARRY J., PH.D., Connecticut Agricultural Experiment Station, New Haven, Conn.

HAMILTON, BENGT L. K., M.D., Sc.D., Professor of Pediatrics, University Clinics, University of Chicago.

HOLT, L. E., JR., M.D., Associate Professor of Pediatrics, Johns Hopkins University.

MACLEOD, GRACE, PH.D., Professor of Nutrition, Teachers College, Columbia University.

PARK, E. A., M.D., Professor of Pediatrics, Johns Hopkins University.

SHERMAN, HENRY C., PH.D., Sc.D., Mitchill Professor of Chemistry and Executive Officer of Department of Chemistry, Columbia University.

STEARNS, GENEVIEVE, PH.D., Research Associate Professor of Pediatrics, University of Iowa.

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary.

IRRADIATED VITAMIN D HOMOGENIZED PASTEURIZED MILK

Distributors.—David Butterick Company, Arlington, 74, Mass. Urbana Pure Milk Company, Urbana, Ill.

Description.—Bottled homogenized pasteurized vitamin D milk irradiated with ultraviolet rays.

Preparation.—The milk complies with legal requirements and is homogenized, and pasteurized by the standard holding method. For description of irradiation, see THE JOURNAL, Oct. 7, 1933, page 1155.

Vitamins.—Clinical investigation shows this milk to be a reliable antirachitic agent, if the proper amount is used. Contains 135 U. S. P. X (Revised, 1934) vitamin D units per quart.

Claims of Distributors.—Irradiated antirachitic homogenized pasteurized milk having otherwise the flavor and food values of usual homogenized pasturized milk. The cream does not separate.

KISMET BISCUIT FLOUR

Manufacturer.—Noblesville Milling Company, Noblesville, Ind.

Description.—Biscuit mix requiring only addition of liquid for baking; contains flour (bleached), vegetable shortening, dry skim milk, dextrose, sodium acid pyrophosphate, salt and soda.

Manufacture.—The nonfat ingredients are thoroughly mixed; the shortening is cut in by means of special equipment. The mix of definite proportions of all ingredients is packed in paper sacks.

Analysis (submitted by manufacturer).—

	per cent
Moisture	8.8
Ash	2.8
Fat (ether extraction method)	9.1
Protein (N × 6.25)	9.8
Crude fiber	0.4
Carbohydrates other than crude fiber (by difference)	70.0

Calories.—4.0 per gram; 114 per ounce.

Claims of Manufacturer.—Requires only the addition of liquid for the preparation of biscuit dough.

(*a*) PALLAS BRAND CRYSTAL WHITE SYRUP
(*b*) NECTAR BRAND GOLDEN SYRUP

Distributor.—Ridenour-Baker Grocery Company, Kansas City, Mo.

Packer.—Bliss Syrup and Preserving Co., Kansas City, Mo.

Description.—(*a*) A table syrup; corn syrup sweetened with sucrose syrup and flavored with vanilla.

(*b*) A table syrup; corn syrup flavored with refiners' syrup.

Manufacture.—(*a*) The same as Bliss Pancake Crystal White Brand Syrup (THE JOURNAL, Nov. 18, 1933, p. 1635).

(*b*) The same as Bliss Pancake Brand Golden Syrup (THE JOURNAL, Oct. 28, 1933, p. 1393).

Claims of Manufacturer.—Recommended for use as an easily digestible and readily assimilable carbohydrate supplement to milk in infant feeding and as a syrup for cooking, baking and the table.

SMITH'S HOLSUM BREAD SLICED

Manufacturer.—Smith's Bakery, Inc., Mobile, Ala.

Description.—Sliced white bread made by the sponge dough method (method described in THE JOURNAL, March 5, 1932, p. 817); prepared from unbleached flour, water, cane sugar, powdered skimmed milk, shortening, salt, yeast, a bleaching agent consisting of corn and soya bean flours, and vinegar.

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SATURDAY, MARCH 2, 1935

SUDDEN AND UNEXPECTED DEATH

Sudden death may be violent, accidental, self inflicted, due to natural causes or unexpected. The suddenness with which death occurs may vary. The death may be unexpected by the victim's friends but anticipated by the person, family or physician. Violent death may be unexpected by the person but planned by others. The interpretation of the factors surrounding sudden death are therefore somewhat dependent on the point of view.

The medicolegal importance of sudden death is manifest. Medical testimony as to the exact cause of such death has done much to refute the now classic epigram "Witnesses may be divided into ordinary witnesses, liars, damned liars and expert witnesses." Thus Burke-Gaffney [1] cites several instances of sudden death apparently due to violence or poisons in which careful necropsy revealed a "natural cause" as the primary factor. Of equal legal and sociological interest are the cases in which the reverse situation has been found.

Numerous studies of sudden death resulting from "natural causes" have been made. A recent addition is that by Hamman,[2] who has reviewed the previous statistical observations. These he summarizes as follows: Ninety-one per cent of sudden deaths from natural causes are due to disease of the cardiovascular system; i. e., heart failure, hemorrhage and arterial embolism and thrombosis. Of the deaths from sudden heart failure, 65 per cent are due to diseases of the coronary arteries; 21 per cent occur with valvular heart disease, 10 per cent with myocardial disease, and 3 per cent with cardiac hypertrophy. Syphilis of the aorta is a conspicuously frequent cause of sudden death and occurs in about 20 per cent of all cases due to natural causes.

An accurate analysis of the mechanism involved is often fraught with great difficulties. Thus, as Hamman says, the circumstances attending sudden stopping of the heart in the midst of apparent health have stirred endless curiosity. The gross anatomic alterations are usually extensive disease of heart muscle commonly due to obstruction of the blood flow in the coronary arteries. These changes must usually come about slowly. With the exception of abrupt occlusion of a large coronary artery there are no anatomic marks by which sudden cardiac death can be identified. In a small proportion of such cases, however, the mechanism has been demonstrated. There are, for example, a few recorded instances of patients dying while electrocardiographic records were being taken. The rapid regular rhythm immediately preceding death has been interpreted as ventricular flutter, the rapid irregular rate at the moment of death as evidence of ventricular fibrillation. It may be concluded that ventricular fibrillation occurs frequently in dying hearts and that it is the only mechanism so far discovered (except perhaps the abrupt onset of heart block or sino-auricular standstill) to account for sudden cardiac death. It is probably often the cause of temporary cessation of the heart beat, producing attacks of unconsciousness and convulsions.

The immediate results of fatal hemorrhage are due to loss of blood, the effects of pressure on a vital organ and damage to tissue from bleeding into its substance. The type of injury explains the less abrupt nature of "sudden death" occurring in this way. Thrombi formed in the systemic veins easily explain the method of pulmonary embolism. In man, occlusion of the trunk or of both branches of the pulmonary artery is always followed by sudden death. Sometimes this follows when only one main branch is plugged. The latter does not occur in experimental animals, and some special explanation is therefore necessary to account for the difference in man. This factor may lie in the pre-existing condition of the heart. The mechanism of systemic arterial embolism is not always wholly clear. Paradoxical embolism, through a patent foramen ovale, may be preceded by pulmonary embolism, thereby increasing the right intra-auricular pressure and making the foramen ovale more patent.

About 9 per cent of the cases of sudden death are accounted for by other disorders. This group includes almost innumerable diseases which have occasionally been reported as a cause of sudden death. There is a recent tendency, backed by considerable evidence, to exclude so-called status thymicolymphaticus as non-existent as a clinical entity. Physical allergy, especially to cold, is now thought to be of some importance and perhaps to explain some of the deaths by drowning.

Nothing is so dramatic as sudden death. In cases due to accident or suicide, the cause is usually promptly apparent. Before our modern knowledge of heart disease, the cause in most other cases was a matter of conjecture. Now coronary thrombosis is the first thought. In 198 cases of sudden death on which postmortem was done in Leeds, 104, which constituted over 53 per cent

1. Burke-Gaffney, H. J. O'D.: Some Medico-Legal Aspects of the Investigation of Sudden and Unexpected Death, East African M. J. **10**: 232 (Nov.) 1933.

2. Hamman, Louis: Sudden Death, Bull. Johns Hopkins Hosp. **55**: 387 (Dec.) 1934.

of all the cases, or 65 per cent of all of those over 40 years of age, were found to be due to diseases of the coronary arteries. In the prevention of sudden death, it must be remembered that irritation by any of a number of different causes may be secondarily responsible.

THE KUPFFER CELLS OF THE LIVER

Much has been published recently about the reticulo-endothelial system, which comprises large phagocytic cells present on the walls of the small blood vessels of many and perhaps all parenchymatous organs. Typical is the Kupffer cell in the vascular channels of the liver. The name refers to the Munich anatomist who first described these cells about 100 years ago. Not only are they intensely phagocytic, ridding the blood of all manner of harmful particles, especially bacteria, but also they are considered by many authorities to have other physiologic powers, notably the ability to form antibodies of various kinds in the development of resistance, and to be the site of normal blood destruction.

The existence and importance of this system of cells, though almost generally accepted, have depended on rather indirect observations. It has been impossible to observe them apart from the neighboring and associated cells, which are present in overwhelming numbers especially in the spleen and liver. That observation in vitro is an important source of information is shown by the work on muscle, for example, which has been extensively studied because it can be observed in an isolated state. In other words, what was needed for further investigation of this reticulo-endothelial system was the isolation of the cells in pure culture. This has now been possible by means of an ingenious procedure recently described by Rous and Beard,[1] working at the Rockefeller Institute in New York.

The experiment starts with the repeated intravenous administration into the experimental animal of colloidal iron (gamma ferric oxide), which has strong magnetic properties. The particles are taken up by the cells of the reticulo-endothelial system, including the Kupffer cells of the liver. The liver is then perfused under pressure, so that the cells become detached and are carried along with many other cells. The wash fluid, rich in many kinds of cells, is then passed over the pole of a large electromagnet, which attracts only the cells containing iron. In this way all other cells are carried away and a more or less pure culture of Kupffer cells is obtained. Cultivation of the cells was carried out under appropriate conditions, and for at least ten days they lived and multiplied. Some of their functions were studied and many interesting observations were made.

The Kupffer cell as seen in pure culture is tremendous in size, varying between 40 and 100 microns in diameter, thus bringing it within the limits of visibility with the naked eye. It contains a single nucleus and is surrounded by an immense circular membrane. The stickiness of the cell is remarkable; any particle with which it comes in contact adheres tenaciously to its surface. Indeed, the cells grow and multiplication depends on their attachment to some anchoring structure. The New York experimenters found that lens paper provided them with an excellent framework for growth. Without such a support they withered and died. Although similar in character to the tissue phagocyte (macrophage), the Kupffer cell is much more sensitive to injury than any other form of white cell. With the effectiveness of the method demonstrated, it should be relatively simple to extend observations of this remarkable type of cell to include studies of its function in the vast and important field of resistance and immunity.

1. Rous, Peyton, and Beard, J. W.: Selection with Magnet and Cultivation of Reticulo-Endothelial Cells (Kupffer Cells), J. Exper. Med. **59**: 577 (May) 1934.

SURGICAL RELIEF OF PAIN

Search for relief from pain leads more people to seek medical help than any other symptom. Fortunately in the majority of instances the cause of this pain can be determined and removed or treated with subsequent relief. There are, however, types of pain so severe or so constant and insusceptible to causal relief that medical aid is limited to supplying drugs or to surgery. Pain of this character has recently been discussed by Learmonth.[1]

The pathways of the nerve fibers that mediate somatic pain sensibility are well known. The same anatomic clarity does not exist for visceral pain sensation. The fibers from the viscera probably travel by way of the splanchnic systems to the long paravertebral sympathetic chains and from there reach the parent spinal nerves along the rami communicantes of the sympathetic system. They finally enter the spinal cord along its posterior nerve roots. Some experimental and clinical evidence indicates that the fibers do not all pass toward the brain in the same tracts as do sensations of somatic pain but probably ascend by a series of relays of short fibers, the course of which is nearer the gray matter of the cord than that of the somatic pain tract. An exact understanding of these anatomic and physiologic factors is a necessary preliminary to surgical attempts for the relief of intractable pain.

Before any operation is undertaken that has for its primary object the denervation of a painful part, according to Learmonth, it must be proved that direct attack on the lesion is impossible. Decision of this question may be necessary under any one of three sets of circumstances: 1. When the site of the lesion and the site of the pain are the same. 2. When the painful area is more extensive than the local lesion, as when a rectal carcinoma invades the nerves of the sacral plexus. 3. When the pain is a "referred" pain and the real lesion distant.

1. Learmonth, J. R.: The Surgeon and Pain, Brit. M. J. **1**: 47 (Jan. 12) 1935.

A plan of operation for the relief of pain must consider the different anatomic arrangements of pain fibers according to the somatic or visceral origin of the pain. Somatic pain fibers from the periphery are first concentrated in nerve trunks and may then pass through a plexus, spread out over posterior roots and finally be concentrated in the anterolateral tract. This tract is the most logical point of attack for the surgeon, for by dividing it properly maximal analgesia with minimal effect on other forms of neural conduction is obtained. Visceral pain fibers are concentrated in a strand or strands of one of the splanchnic nerves. They spread out again over the "roots" of the strand and possibly still further in the sympathetic paravertebral chains. There may then be a choice of many posterior roots over which to enter the cord. In the cord itself the fibers may pass by way either of the anterolateral tract or of the ground bundles close to the gray matter. Hence the most logical point to attack visceral pain fibers is the particular splanchnic strand in which they are first concentrated.

Learmonth discusses the possible operative procedures for the relief of somatic pain by attacking the peripheral nerves, the cranial nerves, the posterior roots and the anterolateral tract. Of these, with notable exceptions, division of the anterolateral tract appears to be the most promising. Indications for its application may be grouped into (1) pain due to the presence of an irremovable tumor that is pressing on or infiltrating contiguous nerves, (2) pain due to pressure on nerves by bony outgrowths, e. g., spondylitis, (3) pain due to intractable neuritis, e. g., diabetes, and (4) pain in amputation stumps of the lower extremity. The operation (called chordotomy) may be performed for pain originating as high as the fifth thoracic segment and in rare instances has been used as high as the eighth cervical segment.

Many operations have been devised for the relief of purely visceral pain. Learmonth discusses only two of these. In angina pectoris it has been found possible to block afferent cardiac fibers outside the spinal canal by injecting alcohol into and around the upper five thoracic ganglions of the sympathetic chain on the left side. The procedure is not serious and many good results have followed its application. In pelvic visceral pain it must be remembered that the first "zone of concentration" of sympathetic fibers from the pelvic viscera is open to attack as the presacral nerve in front of the fifth lumbar vertebra. Presacral neurectomy is followed by little disturbance of function, and the only really undesirable sequel is sterility though not impotence in the male. The operation has been employed with success in certain cases of intractable cystitis and in the palliative treatment of inoperable malignant disease of the bladder and some other pelvic disorders.

When critically reviewed, surgical intervention aimed solely at the relief of pain seems to offer good prospects in certain diseases for which other methods of treatment have proved insufficient or in themselves harmful. The great danger of such methods lies in the temptation to afford relief without preliminary intense efforts to determine and treat the underlying cause. This temptation must be resisted.

Current Comment

EVIDENCE OF LATENT BRUCELLA INFECTION

The method of spread of undulant fever has been the subject of discussion for a number of years. Hardy [1] and Thomsen [2] maintain that direct contact with the tissues of animals harboring some form of Brucella is perhaps the most frequent source of undulant fever in man. Opportunity for detailed investigation of this problem is offered by the packing plants in which workers are exposed to possible sources of infection over long periods. In the survey by Heathman [3] in Minnesota, agglutination and allergic responses as observed by a delayed type of skin reaction were used as indexes of the extent of Brucella infection. A wide discrepancy was encountered between these two criteria, the skin test showing a strikingly high percentage of positive reactions among the workers in the packing plants while agglutination decreased with the length of service in the plant; that is, with the length of exposure to possible infection. Of the 1,096 workers observed, those in contact with the blood and the fresh tissues of beef showed the highest proportion of positive allergic responses (80.1 per cent positive as compared to 55 per cent in the group as a whole). Considering the entire group, the proportion of positive agglutinations was only 8.4 per cent. Hardy reported an equally high percentage among the general population of Iowa. In contrast, however, the percentage of positive allergic reactions was 54.7 among the workers in packing plants and 38.6 in a miscellaneous group. The percentage of positive skin reactions increased and remained high in the groups of workers that were most heavily exposed to the blood and the fresh tissue of beef. This may be the result of numerous and repeated exposures to small infecting doses or to bovine strains of Brucella of low virulence for man and causing only subclinical infections. That agglutination and skin reactions alone are not reliable criteria of the degree of infection with Brucella is evident from the high percentage of positive reactions in cases in which no clinical manifestations of the disease are observed or described. Agglutination was positive in virtually the same percentage of packing plant workers and of other groups apparently not exposed to infected material. The skin reaction, however, gave a greater percentage of positive results in the former group. Which of these tests may be considered a true index of the extent of exposure and resulting reaction can be determined only after further investigation.

1. Hardy, A. V.; Jordan, C. F., and Borts, I. H.: Further Study of Brucella Infection in Iowa, Pub. Health Rep. **47**: 187 (Jan. 22) 1932.
2. Thomsen, A.: Correlation of Occupation with Serologic Reactions from Brucella Abortus, J. Infect. Dis. **48**: 484 (May) 1931.
3. Heathman, Lucy S.: A Survey of Workers in Packing Plants for Evidence of Brucella Infection, J. Infect. Dis. **55**: 243 (Dec.) 1934.

PROCEEDINGS OF THE SPECIAL SESSION

MINUTES OF THE SPECIAL SESSION OF THE HOUSE OF DELEGATES OF THE AMERICAN MEDICAL ASSOCIATION, HELD AT CHICAGO, FEBRUARY 15-16, 1935

HOUSE OF DELEGATES

First Meeting—Friday Morning, February 15

The House of Delegates convened in the Red Lacquer Room of the Palmer House and was called to order at 10 a. m. by the Speaker, Dr. F. C. Warnshuis.

The Secretary read the call for the Special Session of the House of Delegates, as follows:

Call for the Special Session

To the Members of the House of Delegates of the American Medical Association:

In compliance with the official request of the Board of Trustees that the House of Delegates be convened in Special Session, I, as Speaker, under authority of chapter III, section 2, of the By-Laws, hereby officially call the House of Delegates of the American Medical Association to convene in Special Session in the city of Chicago, State of Illinois, at 10 a. m., Central Standard Time, on the fifteenth day of February, 1935.

The business to be transacted at this Special Session shall be limited to the consideration of the social and economic policies of the Association as related to pending and proposed legislation, to sickness insurance and to other matters which may be submitted by the Board of Trustees.

The House shall remain in session, recessing from day to day, until its deliberations are concluded.

Signed and Issued in San Francisco, California, January 21, 1935.

FREDERICK C. WARNSHUIS, M.D.
Speaker, House of Delegates, American
Medical Association.

Dr. J. D. Brook, Chairman of the Reference Committee on Credentials, stated that eighty-four delegates had filed proper credentials, and, on recommendation of Dr. Brook, the House seated these delegates, who then constituted the roll of the House.

On motion of Dr. Brook, seconded by Dr. Arthur J. Bedell, New York, and carried, alternate delegates were seated in accordance with the list presented by the Chairman.

EXECUTIVE SESSION

Dr. H. B. Everett, Tennessee, moved that the House resolve itself into executive session. The motion was seconded by Dr. A. T. McCormack, Kentucky, and carried.

On motion of Dr. A. T. McCormack, Kentucky, seconded by Dr. A. C. Morgan, Pennsylvania, and carried, the presidents, presidents-elect and secretaries of state associations, the chairmen of committees on medical economics vouched for by their state secretaries, the officers of the American Medical Association, and the representatives of the Surgeon Generals of the Army, the Navy and the Public Health Service vouched for by them, were permitted to remain in the House.

On motions regularly made, seconded and carried, there were also admitted to the executive session representatives of the American Academy of Ophthalmology and Otolaryngology; the executive secretary of the Wayne County Medical Society; the deans of the class A medical schools; the president, president-elect and secretary of the Chicago Medical Society; the members of the Committee on Economics of the American Dental Association, and the president and executive secretary of the Medical Society of Milwaukee County.

The Speaker appointed as Sergeants-at-Arms Dr. R. W. Fouts, Nebraska, and Dr. Morris Fishbein, Editor of THE JOURNAL.

Statement by the Board of Trustees

Dr. J. H. J. Upham, Chairman, read an official statement from the Board of Trustees, as follows:

The Board of Trustees requested that this special session of the House of Delegates be called for "the consideration of the social and economic policies of the Association as related to pending and proposed legislation, to sickness insurance and to other matters which may be submitted by the Board of Trustees."

In offering this subject for the consideration of the House of Delegates, the Board of Trustees feels that the members of the House should be properly oriented as to the manner by which we of the medical profession came into the present situation.

The Board of Trustees deemed the present situation of such vital importance as to require that opportunity again be given for an expression through its official representatives of the well considered views of the organized medical profession of the United States on these subjects.

SICKNESS INSURANCE

Sickness insurance is not unique as a subject for discussion in the House of Delegates. In 1916 the American Medical Association developed a Committee on Industrial Insurance to study the whole question of social insurance for presentation to the House of Delegates. At the same time the House of Delegates decided, through its committee, to educate the American medical profession in the general principles of social insurance, to inform the profession concerning the subject, and to appear before legislative bodies in this country when advisable. In 1917 the Committee on Social Insurance presented a resolution to the House of Delegates authorizing a continuance of the study of social insurance and a molding of laws for the purpose so that the health of the community and the practice of medicine might be properly safeguarded. At that time—in 1917—the principle was established that all such legislation should provide for freedom of choice of physician by the insured, for payment of the physician in proportion to the amount of work done, for separation of the functions of medical official supervision from the function of daily care of the sick, and for adequate representation of the medical profession on the appropriate administrative bodies.

The committee presented reports to the House of Delegates at the sessions in 1916, 1917 and 1919, and the House of Delegates each year approved the report and directed the committee to continue its work. In 1920, however, after a consideration of these reports, the American Medical Association, through its House of Delegates, declared its opposition to the institution of any scheme embodying a system of compulsory contributory insurance against illness or any other scheme which provides for medical service to be rendered contributors or their dependents, provided, controlled or regulated by any state or federal government. In 1922 the House of Delegates again declared its opposition to all forms of state medicine because of the ultimate harm that would come thereby to the public weal through such forms of medical practice. And it defined state medicine as any form of medical treatment, provided, conducted, controlled or subsidized by the federal or any state government, excepting such service as is provided by the Army, Navy or Public Health Service, and that which is necessitated by the control of communicable disease, the treatment of mental disease or of the

indigent sick. This resolution was finally made to except also such other services as may be approved, administered or conducted by local county medical societies and not disapproved by the state medical society of which it is a component part.

CHANGES IN THE NATURE OF THE PRACTICE OF MEDICINE

Since 1923 the medical profession of the United States has been increasingly aware of various plans for changing the nature of medical practice attempted in different communities under local auspices, in many instances with the approval of the county and state medical society directly concerned. In 1925, recognizing the influences at work leading toward a change in the nature of the practice of medicine, a Commission on Medical Education was developed, which included representatives of the organized medical, dental, nursing and hospital professions, distinguished educators and leaders of public thought. This commission undertook a complete study of the medical scheme with a view to the development of recommendations for modification for the benefit of the public health, for the improvement of medical service and for the advancement of medical science.

It should be recognized also that schemes of sickness insurance under governmental auspices had been developed from time to time in foreign countries, beginning with the German one proposed by Bismarck in 1883 and followed by similar systems in other countries, culminating in the British system in 1911, proposed by Lloyd George. From time to time social workers, economists and physicians from the United States have gone abroad to study such systems and on their return have published in American periodicals the results of their studies. Moreover, THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION and other periodicals have regularly reflected these activities in the letters of foreign correspondents and in special articles published in THE JOURNAL, notably a series written by the Secretary of the British Medical Association especially for THE JOURNAL.

COMMITTEE ON THE COSTS OF MEDICAL CARE

In 1927, largely under the influence of three philanthropic foundations, the Twentieth Century Fund, the Milbank Fund and the Rosenwald Fund, a committee of five was formed, called the Committee on the Costs of Medical Care, which was ultimately expanded to a committee of forty-eight, this committee also being planned to survey the entire medical setup in the United States and to bring out recommendations for providing the American people with what was called, "the best type of medical care at a price they could afford to pay." Both the report of the Commission on Medical Education and of the Committee on the Costs of Medical Care were made available in 1932. These reports have had a considerable influence on the trend of American thought since the time of their publication relative to proposed changes in the nature of medical practice. In association with the development of this work, the American Medical Association established a Bureau of Medical Economics, which was planned to compile, correlate and make available the facts in relationship to medical practice in the United States and also to undertake studies of new forms of medical practice developed from time to time in various places.

When the economic depression swept the United States toward the end of the presidency of Herbert Hoover, all plans for social change were held in abeyance while the nation gave the larger portion of its attention to the problems of recovery and relief. It was recognized that the satisfaction of such fundamental needs as employment, food, fuel and housing were primary and that questions of social change must be secondary until these needs had been satisfied.

Nevertheless, continuing experimentation with new plans of medical service arousing discord in the medical profession in many places were brought increasingly to the attention of the official bodies of the American Medical Association so that the House of Delegates of the Association at its meeting in Cleveland in June 1934 adopted ten fundamental principles to guide the medical profession in the control of experiments with new forms of medical practice.

At the same time the Judicial Council of the American Medical Association introduced certain amendments to the Principles of Medical Ethics, recognizing the necessity for control of hospital practice, industrial practice, the practice of medicine by commercial groups, and similar forms. The question of compulsory sickness insurance did not even in June 1934 seem to loom largely on the medical horizon. Then on June 8, 1934, the President of the United States, just before departing on a vacation, announced his intention following his return to propose legislation for greater economic security for the people of the United States, and he indicated as primary objectives in such plans the question of unemployment and care of the aged.

THE COMMITTEE ON ECONOMIC SECURITY

In order to aid him in the development of these plans, a Committee on Economic Security was established including Frances Perkins, Secretary of Labor; Henry Morgenthau Jr., Secretary of the Treasury; Homer S. Cummings, Attorney General; Henry A. Wallace, Secretary of Agriculture, and Harry L. Hopkins, Director of Relief. This committee in turn set up a technical advisory staff with an executive director and in this technical advisory staff there were included some thirteen divisions of the problem of social security with such departments as unemployment, old age, maternal welfare, child welfare, care of the handicapped, dental care, hospital care, medical service and public health service. A technical director was installed for each of these departments and it was announced that the problem of medical service would be under a technical director.

Edgar Sydenstricker, an employee of the Milbank Fund, who presented an individual minority report for the Committee on the Costs of Medical Care, indicating his belief that its plans did not go far enough and that adequate provision for all of the people of food, fuel, clothing, housing and medical service must be the primary objectives of any social security plan, was made technical director for medical service.

Immediately on August 21, 1934, THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION made available to Hon. Frances Perkins an editorial in which it was pointed out that the medical profession must be adequately represented in any studies of the need for sickness insurance. To this Secretary Perkins replied with assurance that "the advice of the medical profession will be obtained on all matters affecting it." "Moreover," she said, "it is our intention to obtain that advice through the appointment of a group of outstanding physicians and surgeons who will be available for consultations from time to time as the study develops."

THE MEDICAL ADVISORY BOARD

These communications were referred to the Board of Trustees of the American Medical Association, which officially offered to Secretary Perkins, as representatives of an organization of approximately 100,000 physicians, all the observations and the results of investigations made by the Bureau of Medical Economics of the American Medical Association as well as information and advice of all the officials and of the headquarters personnel together with any facilities of the Association. A similar communication was sent by the Secretary and General Manager to Mr. Edwin E. Witte, Executive Director of the Committee on Economic Security. In the meantime, efforts were made to determine the names of those who were to serve on the Medical Advisory Board. These names were held by the officials of the government in the greatest secrecy, so that it was impossible to determine until just before the Medical Advisory Board's first meeting the names of those who had been asked to serve.

When the Medical Advisory Board met, the technical advisory staff for medical service was supplemented by the names of Dr. R. G. Leland and Mr. A. M. Simons of the Bureau of Medical Economics of the American Medical Association. Isidore Falk, a worker in the Milbank Fund, Michael M. Davis of the Rosenwald Fund and Nathan Sinai, who had conducted various investigations for the Michigan State Medical Society and who had drawn up an insurance plan for that society which, however, the society finally failed to adopt, had been previously added to the technical staff.

The Medical Advisory Board was told at the time of this meeting that the technical studies would be completed and that it would have opportunity later to offer its advice relative to certain plans which would be drawn up by the technical advisory staff. In the meantime, the members of the Committee on Eco-

nomic Security had been provided by the headquarters office of the American Medical Association with a statement on compulsory sickness insurance prepared by the Bureau of Medical Economics of the American Medical Association.

When the Congress of the United States convened shortly after the beginning of 1935, the President of the United States in his message delivered January 4 indicated his plans for social security. Thus he said:

> Closely related to the broad problem of livelihood is that of security against the major hazards of life. Here also a comprehensive survey of what has been attempted or accomplished in many nations and in many states proves to me that the time has come for action by the national government. I shall send to you, in a few days, definite recommendations based on these studies. These recommendations will cover the broad subjects of unemployment insurance and old age insurance, of benefits for children, for mothers, for the handicapped, for maternity care, and for other aspects of dependency and illness where a beginning can be made.

Interesting was the manner in which the President passed immediately from unemployment insurance and old age insurance to the question of benefits for children, for mothers, for the handicapped and for maternity care, leaving the question of sickness insurance to the phrase in which he said "for other aspects of dependency and illness where a beginning can be made."

THE PRESIDENT'S MESSAGE

However, on January 17, 1935, the President sent to Congress a message relative to unemployment insurance, old age pensions, federal aid to dependent children, the support of existing mothers' pension systems, appropriations for services for the protection and care of homeless, neglected, dependent and crippled children, and finally additional aid by the federal government to state and local public health agencies and for the strengthening of the federal Public Health Service. Of sickness insurance the President said specifically:

> I am not at this time recommending the adoption of so-called "health insurance," although groups representing the medical profession are cooperating with the federal government in the further study of the subject and definite progress is being made.

Coincident with the message to Congress by the President came a message from the Committee on Economic Security to the President and the report that it submitted to the President. The committee indicated again in its report the difficulties inherent in a sickness insurance program but seemed to forecast quite definitely its plans in relationship to this problem. Thus it said:

> As a first measure for meeting the very serious problem of sickness in families with low income we recommend a nation-wide preventive public health program. It should be largely financed by state and local governments and administered by state and local health departments, the federal government to contribute financial and technical aid. The program contemplates (1) grants in aid to be allocated through state departments of health to local areas unable to finance public health programs from state and local resources, (2) direct aid to states in the development of state health services and the training of personnel for state and local health work, and (3) additional personnel in the United States Public Health Service to investigate health problems of interstate or national concern.
>
> The second major step we believe to be the application of the principles of insurance to this problem. We are not prepared at this time to make recommendations for a system of health insurance. We have enlisted the cooperation of advisory groups representing the medical and dental professions and hospital management in the development of a plan for health insurance which will be beneficial alike to the public and the professions concerned. We have asked these groups to complete their work by March 1, 1935, and expect to make a further report on this subject at that time or shortly thereafter. Elsewhere in our report we state principles on which our study of health insurance is proceeding, which indicate clearly that we contemplate no action that will not be quite as much in the interests of the members of the professions concerned as of the families with low incomes.

PLANS FOR HEALTH INSURANCE

The committee proceeded somewhat further along in its report to a brief consideration of so-called health insurance, which still more elaborately hints at what is contemplated. Apparently the technical advisory staff of the Committee on Economic Security has made studies of the compulsory sickness insurance plans already established abroad. It has considered the possibilities of voluntary insurance and rejected them, as well as the possibility of ordinary commercial insurance. It has already, it seems, prepared the basic principles for a tentative plan of insurance believed adequate for the needs of American citizens with small means and appropriate to existing conditions in the United States. These are said to have been submitted to the professional advisory groups organized for the purpose. The advisory groups requested an extension of time and the extension was granted until March 1. The statement was made that "arrangements have been effected for close cooperative study between the committee's technical staff and the technical experts of the American Medical Association." In its report submitted to the President, the Committee on Economic Security offered the following information to the professions and to the public as to the main lines along which its studies are proceeding:

1. The fundamental goals of health insurance are: (*a*) the provision of adequate health and medical services to the insured population and their families; (*b*) the development of a system whereby people are enabled to budget the costs of wage loss and of medical costs; (*c*) the assurance of reasonably adequate remuneration to medical practitioners and institutions; (*d*) the development under professional auspices of new incentives for improvement in the quality of medical services.

2. In the administration of the services the medical professions should be accorded responsibility for the control of professional personnel and procedures and for the maintenance and improvement of the quality of service; practitioners should have broad freedom to engage in insurance practice, to accept or reject patients, and to choose the procedure of remuneration for their services; insured persons should have freedom to choose their physicians and institutions; and the insurance plan shall recognize the continuance of the private practice of medicine and of the allied professions.

3. Health insurance should exclude commercial or any other intermediary agents between the insured population and the professional agencies which serve them.

4. The insurance benefits must be considered in two broad classes: (*a*) cash payments in partial replacement of wage loss due to sickness and for maternity cases, and (*b*) health and medical services.

5. The administration of cash payments should be designed along the same general lines as for unemployment insurance and, so far as may be practical, should be linked with the administration of unemployment benefits.

6. The administration of health and medical services should be designed on a state-wide basis, under a federal law of a permissive character. The administrative provisions should be adapted to agricultural and sparsely settled areas as well as to industrial sections, through the use of alternative procedures in raising the funds and furnishing the services.

7. The costs of cash payments to serve in partial replacement of wage loss are estimated as from 1 to 1.5 per cent of pay roll.

8. The costs of health and medical services, under health insurance, for the employed population with family earnings up to $3,000 a year, is not primarily a problem of finding new funds but of budgeting present expenditures, so that each family or worker carries an average risk rather than an uncertain risk. The population to be covered is accustomed to expend, on the average, about 4.5 per cent of its income for medical care.

9. Existing health and medical services provided by public funds for certain diseases or for entire populations should be correlated with the services required under the contributory plan of health insurance.

10. Health and medical services for persons without income, now mainly provided by public funds, could be absorbed into a contributory insurance system through the payment by relief or other public agencies of adjusted contributions for these classes.

11. The rôle of the federal government is conceived to be principally (*a*) to establish minimum standards for health insurance practice; and (*b*) to provide subsidies, grants or other financial aids or incentives to states which undertake the development of health insurance systems which meet the federal standards.

THE WAGNER-LEWIS BILL

Promptly on the submission of these messages and reports to the Congress of the United States, Senator Wagner of New York submitted in the Senate S. 1130, which is known as the Wagner Bill for Social Insurance. It covers specifically old age assistance, aid to dependent children, earnings and employment excise taxes. It sets up a social insurance board composed of three persons appointed by the President, to be a part of the Department of Labor. This board is authorized, with the approval of the Secretary of Labor, to appoint and fix compensation of all officers, attorneys and experts needed, without regard to civil service laws. Under this board will come the supervision of old age insurance, unemployment compensation, accident compensation, health insurance and related subjects. Annuity certificates and taxes on payrolls of 3 per cent are provided as means of raising funds.

Under the heading maternity and child welfare, this bill appropriates $4,000,000 annually to enable the federal government to cooperate with the state agencies of health in extending and strengthening services for the health of mothers and children, especially in rural areas and in areas suffering from

severe economic distress. This is to be administered by the Department of Labor. Each state is to get $20,000 annually, and $1,000,000 is to be apportioned among states in proportion to the respective live birth rates. The Secretary of Labor may apportion $800,000 among states that are unable to match the federal appropriation. Furthermore, the Secretary of Labor may use the remainder to make special demonstrations and conduct research in maternal care. To secure the federal funds, the states must submit their plans to the Children's Bureau and obtain approval.

For the care of crippled children the Wagner bill provides $3,000,000 annually, to be handled in much the same way as the funds for maternal and child welfare are to be handled, also subject to approval of the Children's Bureau.

For child welfare services $1,500,000 annually is allotted, also distributed and controlled along the same lines.

Finally, the Wagner bill appropriates $10,000,000 annually to be administered by the Bureau of the Public Health Service. The bureau is to allot $8,000,000 to the states in amounts determined on the basis of the need of each state for such assistance, to develop state health services, including the training of personnel for state and local health work and for the purpose of assisting counties or other political subdivisions of the states in maintaining public health programs. The sum of $2,000,000 is to be made available annually to the Public Health Service for the further investigations of diseases and problems of sanitation and related matters.

In the meantime, various proponents of changes in the social order had been exceedingly active in developing plans for the promotion of sickness insurance schemes in the individual states. Most active was the group known as the American Association for Social Security, of which the executive secretary, Abraham Epstein, is most widely known. This group prepared a so-called social security bill for health insurance which proposed to establish a system of compulsory and voluntary state health insurance, including practically all manual workers and their dependents under its compulsory provisions. It also provided that certain other persons might voluntarily avail themselves of the supposed benefits of the act, so that it would include eventually 95 per cent of the entire population of the United States. This bill was immediately promoted in all the individual states, and it is understood that it is to be offered in the individual state legislatures from time to time as they convene throughout the country.

ACTIVITIES OF THE HEADQUARTERS OFFICE

In order to meet this situation, the headquarters office of the American Medical Association has made available an editorial analysis of the Epstein bill and, through its Bureau of Legal Medicine and Legislation, its Bureau of Medical Economics and its Secretary's office, has been in direct communication with the individual state medical societies and state organizations, supplying them with information and a suitable analysis of this proposed legislation. Moreover, the Bureau of Medical Economics to meet the arguments offered by proponents of compulsory sickness insurance on a federal basis has developed a Catechism on Sickness Insurance, a series of articles on the sickness insurance schemes now operative in foreign countries, and a vast amount of data published in various places on this subject.

In the meantime, the Medical Advisory Board has had another session and it is no secret that the technical advisory staff proposes to assume complete responsibility for the recommendations incorporated in the final report to be made to the Committee on Economic Security, which, in turn, will offer its suggestions to the President. It will then be for the President of the United States to determine what he proposes to present to Congress in a further message on this subject, and also whether or not any special legislation of federal character is to be introduced as an administration bill.

Members of the House of Delegates should, of course, also be advised that at the time of this writing the Administration Relief Bill of $4,800,000,000 to be disposed of by the President on his own responsibility is still undergoing hearings, and that the Wagner bill has not yet been reported out of either House or Senate committees.

This is the status of the situation at this time. It remains for the House of Delegates to determine the policies of this organization for the guidance of its members and of its representatives.

QUESTIONS FOR THE HOUSE OF DELEGATES

Dr. Upham also presented six questions suggested for discussion by the House of Delegates, as follows:

1. Shall or shall not the House of Delegates again declare its opposition to all forms of state medicine, including any form of medical treatment provided, conducted, controlled or subsidized by the federal or by any state government, excepting such service as is provided by the Army, Navy or Public Health Service and such as is necessitated by the control of communicable disease or for the treatment of mental disease or of the indigent sick, and excepting also all such other service as may be approved, administered or conducted by local county medical societies and not disapproved by the state medical societies of which they are component parts?

2. What is the attitude of the House of Delegates toward the eleven principles proposed by the Committee on Economic Security as fundamental to any system of sickness insurance to be established by the federal government?

3. Shall or shall not the House of Delegates of the American Medical Association reaffirm its opposition to the principle of federal subsidies to individual states in relationship to the provision of medical service?

4. Will the House of Delegates express its position relative to that provision of the Wagner bill which places the control of medical affairs in the Department of Labor under a non-medical special board?

5. What attitude shall the House of Delegates take relative to the proposed sickness insurance legislation in the individual states as represented by the Epstein bill of the American Association for Social Security?

6. How may the American Medical Association initiate plans for still further improving the quality of medical service and for obtaining better distribution of medical service for all the people?

Actions of the House of Delegates

Dr. B. F. Bailey, Nebraska, moved that a Special Reference Committee be appointed to crystallize the expressions of the delegates and bring recommendations to the House for final action. The motion was seconded by Dr. H. B. Everett, Tennessee, and carried.

Dr. Charles E. Humiston, Illinois, presented a resolution urging on the President and Congress of the United States the creation of a new department under a secretary of health, which was referred to the Special Reference Committee.

Dr. John W. Amesse, Colorado, presented a resolution recommending that the dangers of the lack of free choice of physicians be brought to the attention of the President of the United States, which was referred to the Special Reference Committee.

At the request of Dr. J. C. Flippin, Virginia, the Secretary and the President explained the relation of the Committee on Economic Security, the Medical Advisory Board of that committee and the American Medical Association.

On motion of Dr. Arthur J. Bedell, New York, seconded by Dr. J. D. Brook, Michigan, and carried, the House authorized the appointment of a Press Release Committee consisting of Dr. Holman Taylor, Texas; Dr. Wells Teachnor Sr., Ohio; Dr. J. N. Baker, Alabama, and Dr. Morris Fishbein, Editor of THE JOURNAL.

There was general discussion participated in by various delegates, after which, on request of Dr. J. N. Baker, Alabama, Dr. R. G. Leland, director of the Bureau of Medical Economics, was asked to address the House. At Dr. Leland's request, his appearance before the House was deferred until the afternoon session.

Special Reference Committee

The Speaker appointed the following members of the House of Delegates on the Special Reference Committee: Dr. Harry H. Wilson, California, Chairman; Dr. N. B. Van Etten, New York; Dr. E. H. Cary, Texas; Dr. W. F. Braasch, Minnesota; Dr. Warren F. Draper, Virginia; Dr. F. S. Crockett, Indiana, and Dr. E. F. Cody, Massachusetts.

The meeting recessed at 12:50 to reconvene at 2:30 p. m.

Friday Afternoon, February 15

The House of Delegates reconvened at 2:30 p. m., with Dr. F. C. Warnshuis, Speaker, in the chair.

Dr. R. G. Leland, director of the Bureau of Medical Economics, addressed the House, after which Dr. William C. Woodward, director of the Bureau of Legal Medicine and Legislation, on request, made a statement regarding his views of the situation.

There ensued general discussion by the members of the House, during which Dr. John F. Hagerty, New Jersey, suggested that the proposals presented by the Board of Trustees at the morning session be restated and that the Board present its reaction to these proposals, and the suggestion was duly seconded. There ensued further discussion, after which the Speaker presented his understanding of Dr. Hagerty's suggestion; namely, that the House of Delegates consider the six points presented by the Board of Trustees during the discussion of which each delegate, as well as each member of the Board of Trustees, might give suggestions. Dr. Hagerty's suggestion was then adopted, and the six questions were restated and discussed seriatim by various members of the House.

The Secretary read a telegram from Dr. W. G. Ricker, Vermont, who was unavoidably absent from the meeting. This telegram, together with other similar telegrams, was referred to the Special Reference Committee.

The House referred to the Special Reference Committee resolutions introduced by Dr. R. B. Anderson, Texas, requesting the House of Delegates to reaffirm its position in opposition to sickness insurance. Other resolutions on the subject of sickness insurance, presented by Dr. H. C. Macatee, District of Columbia, Dr. Charles H. Goodrich, New York, and Dr. Walter E. Vest, West Virginia, were also referred to the Special Reference Committee.

A motion of Dr. Isaac A. Abt, Section on Pediatrics, seconded by Dr. J. N. Baker, Alabama, that a committee of nine be appointed to study all phases of this subject and report back to the House at the Atlantic City Session was referred to the Special Reference Committee.

The House recessed at 5:25 p. m., to reconvene at 10 a. m., Saturday, February 16.

Second Meeting—Saturday Morning, February 16

The House of Delegates was called to order at 10 a. m., Saturday, February 16, by the Speaker, Dr. F. C. Warnshuis.

Dr. J. D. Brook, Chairman, presented the report of the Reference Committee on Credentials, offering credentials of additional alternate delegates, who were then seated by the House. Dr. Brook stated that there were 162 delegates registered.

The action of the Secretary, in referring to the Special Reference Committee recommendations from the New Jersey delegates received at adjournment on Friday, was approved.

The Secretary presented a communication from physicians in Boston requesting the House of Delegates to consider fully the Lundeen bill, H. R. 2827, and the workers' health insurance bill.

Resolutions urging the American Medical Association to sponsor and support actively legislation by Congress to remove the immigrant physician from his present exemptions from the quota under the 1917 immigration law, and a resolution in which the Section on Radiology endorsed such resolutions, both introduced by Dr. Albert Soiland, Section on Radiology, were adopted, after discussion, on motions duly seconded and carried.

Dr. Hugh Cumming, Surgeon General of the United States Public Health Service, addressed the House.

The Secretary then read the minutes of the Friday session of the House, which were adopted on motion of Dr. George W. Kosmak, New York, seconded by Dr. J. D. Brook, Michigan, and carried.

Dr. E. A. Hines, South Carolina, moved that the minutes of the Special Session of the House be reported in the usual manner in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, and the motion was seconded by Dr. Arthur J. Bedell, New York, and carried.

Dr. Harry H. Wilson, Chairman, read the report of the Special Reference Committee, which, after prolonged discussion, was referred back to the committee for redrafting.

The House recessed at 12 noon to reconvene at 2 p. m., and all those desiring to recommend revision of the report of the Special Reference Committee were invited to meet with the committee during the recess.

Saturday Afternoon, February 16

The House reconvened at 2 p. m., Saturday, February 16, with Dr. F. C. Warnshuis, Speaker, presiding.

Dr. Harry H. Wilson, Chairman of the Special Reference Committee, presented the following report, which, on motions duly seconded and carried, was unanimously adopted:

REPORT OF THE SPECIAL REFERENCE COMMITTEE

Your reference committee, believing that regimentation of the medical profession and lay control of medical practice will be fatal to medical progress and inevitably lower the quality of medical service now available to the American people, condemns unreservedly all propaganda, legislation or political manipulation leading to these ends.

Your reference committee has given careful consideration to the record by the Board of Trustees of the previous actions of this House of Delegates concerning sickness insurance and organized medical care and to the account of the measures taken by the Board of Trustees and the officials of the Association to present this point of view to the government and to the people.

The American Medical Association, embracing in its membership some 100,000 of the physicians of the United States, is by far the largest medical organization in this country. The House of Delegates would point out that the American Medical Association is the only medical organization open to all reputable physicians and established on truly democratic principles, and that this House of Delegates, as constituted, is the only body truly representative of the medical profession.

The House of Delegates commends the Board of Trustees and the officers of the Association for their efforts in presenting correctly, maintaining and promoting the policies and principles, heretofore established by this body.

The primary considerations of the physicians constituting the American Medical Association are the welfare of the people, the preservation of their health and their care in sickness, the advancement of medical science, the improvement of medical care, and the provision of adequate medical service to all the people. These physicians are the only body in the United States qualified by experience and training to guide and suitably control plans for the provision of medical care. The fact that the quality of medical service to the people of the United States today is better than that of any other country in the world is evidence of the extent to which the American medical profession has fulfilled its obligations.

The House of Delegates of the American Medical Association reaffirms its opposition to all forms of compulsory sickness insurance whether administered by the federal government, the governments of the individual states or by any individual industry, community or similar body. It reaffirms, also, its encouragement to local medical organizations to establish plans for the provision of adequate medical service for all of the people, adjusted to present economic conditions, by voluntary budgeting to meet the costs of illness.

The medical profession has given of its utmost to the American people, not only in this but in every previous emergency. It has never required compulsion but has always volunteered its services in anticipation of their need.

The Committee on Economic Security, appointed by the President of the United States, presented in a preliminary report to Congress on January 17 eleven principles which that committee considered fundamental to a proposed plan of compulsory health insurance. The House of Delegates is glad to recognize that some of the fundamental considerations for an adequate, reliable and safe medical service established by the medical profession through years of experience in medical practice are found by the committee to be essential to its own plans.

However, so many inconsistencies and incompatabilities are apparent in the report of the President's Committee on Economic Security thus far presented that many more facts and details are necessary for a proper consideration.

The House of Delegates recognizes the necessity under conditions of emergency for federal aid in meeting basic needs of the indigent; it deprecates, however, any provision whereby federal subsidies for medical services are administered and controlled by a lay bureau. While the desirability of adequate medical service for crippled children and for the preservation of child and maternal health is beyond question, the House of Delegates deplores and protests those sections of the Wagner bill which place in the Children's Bureau of the Department of Labor the responsibility for the administration of funds for these purposes.

The House of Delegates condemns as pernicious that section of the Wagner bill which creates a social insurance board without specification of the character of its personnel to administer functions essentially medical in character and demanding technical knowledge not available to those without medical training.

The so-called Epstein bill, proposed by the American Association for Social Security, now being promoted with propaganda in the individual states, is a vicious, deceptive, dangerous and demoralizing measure. An analysis of this proposed law has been published by the American Medical Association. It introduces such hazardous principles as multiple taxation, inordinate costs, extravagant administration and an inevitable trend toward social and financial bankruptcy.

The committee has studied this matter from a broad standpoint, considering many plans submitted by the Bureau of Medical Economics as well as those conveyed in resolutions from the floor of the House of Delegates. It reiterates the fact that there is no model plan which is a cure-all for the social ills any more than there is a panacea for the physical ills that affect mankind. There are now more than 150 plans for medical service undergoing study and trial in various communities in the United States. Your Bureau of Medical Economics has studied these plans and is now ready and willing to advise medical societies in the creation and operation of such plans. The plans developed by the Bureau of Medical Economics will serve the people of the community in the prevention of disease, the maintenance of health and with curative care in illness. They must at the same time meet apparent economic factors and protect the public welfare by safeguarding to the medical profession the functions of control of medical standards and the continued advancement of medical educational requirements. They must not destroy that initiative which is vital to the highest type of medical service.

In the establishment of all such plans, county medical societies must be guided by the ten fundamental principles adopted by this House of Delegates at the annual session in June 1934. The House of Delegates would again emphasize particularly the necessity for separate provision for hospital facilities and the physician's services. Payment for medical service, whether by prepayment plans, instalment purchase or so-called voluntary hospital insurance plans, must hold, as absolutely distinct, remuneration for hospital care on the one hand and the individual, personal, scientific ministrations of the physician on the other.

Your reference committee suggests that the Board of Trustees request the Bureau of Medical Economics to study further the plans now existing and such as may develop, with special reference to the way in which they meet the needs of their communities, to the costs of operation, to the quality of service rendered, to the effects of such service on the medical profession and to the applicability to rural, village, urban and industrial population, and to develop for presentation at the meeting of the American Medical Association in June model skeleton plans adapted to the needs of populations of various types.

The gist of the resolution introduced by Dr. Charles H. Goodrich, New York, has been included in the preamble of the report of your reference committee.

The resolution introduced by Dr. Walter E. Vest, West Virginia, relative to representation of the Association in Washington, and the communication introduced by Dr. G. Milton Linthicum, Maryland, relative to presentation of the views of the profession to the government, are referred to the Board of Trustees.

The resolution presented by Dr. C. E. Humiston, Illinois, for the appointment of a secretary of health in the cabinet is referred to the Bureau of Legal Medicine and Legislation and to the Board of Trustees.

A proposed program asking for the drafting of a model law embodies principles not yet approved by this House of Delegates and is therefore referred to the Bureau of Legal Medicine and Legislation and to the Board of Trustees.

The resolution introduced by Dr. J. W. Amesse, Colorado, protesting interference with the right of free choice of physician in the Federal Relief Administration is referred to the Bureau of Legal Medicine and Legislation.

Resolutions offered by Dr. R. B. Anderson, Texas, and by Dr. H. C. Macatee, District of Columbia, the motion of Dr. I. A. Abt, Section on Pediatrics, and a group of recommendations emanating from the Interstate Medical Economics Conference are covered by sections of the report of your Special Reference Committee.

Harry H. Wilson, Chairman, California
Warren F. Draper, Virginia
E. F. Cody, Massachusetts
E. H. Cary, Texas
N. B. Van Etten, New York
F. S. Crockett, Indiana
W. F. Braasch, Minnesota

Dr. Wilson then moved that comments on the principles of insurance that had been submitted by Dr. H. H. Shoulders, Tennessee, be referred by the House of Delegates to the Bureau of Medical Economics. The motion was seconded by Dr. E. G. Wood, Tennessee, and carried.

It was moved by Dr. Burt R. Shurly, Section on Laryngology, Otology and Rhinology, seconded by Dr. C. E. Kiely, Ohio, and carried, that the report of the Special Reference Committee be given the widest possible publicity. It was suggested by Dr. Holman Taylor, Texas, that a professional propagandist be employed to publicize the report and to meet the propaganda of the opposition. Dr. Morris Fishbein, Editor of THE JOURNAL, stated that arrangements for publicity had already been made, such as broadcasts and publication in THE JOURNAL and in HYGEIA.

Dr. C. B. Reed, Illinois, presented resolutions urging that all clinics, child welfare groups of whatever nature, and other social or charitable organizations having to do with medical problems be regarded as a part and attribute of medical practice, and moved the adoption of these resolutions. The motion was seconded by Dr. C. S. Skaggs, Illinois, and carried.

Dr. McLain Rogers, Oklahoma, suggested that a committee be appointed to contact the President of the United States.

It was moved by Dr. F. S. Crockett, Indiana, that the House of Delegates instruct its members that immediately on returning home they should contact their state association officers to call meetings of their respective houses of delegates to consider and act on the report of the Special Reference Committee concerning sickness insurance just adopted by this House of Delegates, and report their action to the Secretary of the American Medical Association. The motion was seconded by Dr. Charles J. Whalen, Illinois, and, after discussion, was lost by a vote of 55 to 63.

The motion of Dr. Frederic E. Sondern, New York, seconded by Dr. A. R. McComas, Missouri, was adopted, as amended by Dr. E. H. Cary, Texas; namely, "It is the sense of the members of this House of Delegates that they are willing immediately to take the leadership of calling together the doctors of the states of the respective delegates to help inform them and solidify professional opinion as expressed here."

The Secretary read the minutes of the Saturday morning session of the House, which were adopted.

It was moved by Dr. Arthur J. Bedell, New York, seconded by Dr. H. B. Everett, Tennessee, and carried, that the House arise from executive session.

Dr. Austin A. Hayden, Secretary of the Board of Trustees, Dr. J. H. J. Upham, Chairman of the Board of Trustees, Dr.

Walter L. Bierring, President, and Dr. James S. McLester, President-Elect, addressed the House.

Dr. Albert Soiland, Section on Radiology, requested that a message of the proper sort be sent to Surgeon General P. S. Rossiter, expressing sorrow for the illness of, and hope of recovery for, Captain McDowell of the Medical Corps of the United States Navy, and the Speaker stated that such a message would be sent by the Secretary.

Dr. C. A. Dukes, California, extended greetings from Dr. George Reinle, Vice President of the American Medical Association, who was unable to attend the Special Session.

The Speaker declared the House adjourned, sine die, at 3:50 p. m.

Association News

ABSTRACT OF MINUTES OF MEETINGS OF BOARD OF TRUSTEES HELD IN CHICAGO, FEBRUARY 14 TO 17

The Board of Trustees met at the headquarters office of the Association on February 14 and at the Palmer House on the 15th, 16th and 17th and gave careful consideration to the affairs of the Association.

SICKNESS INSURANCE

At its meeting on Thursday the Board of Trustees prepared a statement to be presented to the House of Delegates the following day giving an outline of the subject of sickness insurance; also a number of questions which the Board felt should be answered by the House of Delegates.

ELECTIONS

The following appointments were made for the various councils, committees and editorial boards: Council on Pharmacy and Chemistry—Drs. Morris Fishbein, G. W. McCoy and E. M. Bailey to succeed themselves; Dr. Howard J. Brown to succeed Dr. Stanhope Bayne-Jones; Dr. E. M. Nelson to succeed Dr. G. H. Simmons, and Dr. G. H. Simmons honorary member for life. Committee on Foods—Drs. G. F. Powers and Morris Fishbein to succeed themselves. Council on Physical Therapy—Drs. W. E. Garrey, W. W. Coblentz and John S. Coulter to succeed themselves. *Archives of Internal Medicine*—Dr. J. H. Musser; *Archives of Neurology and Psychiatry*—Dr. Adolph Meyer; *Archives of Otolaryngology*—Dr. George M. Coates; *Archives of Ophthalmology*—Dr. William Zentmayer; *American Journal of Diseases of Children*—Dr. H. F. Helmholz; *Archives of Pathology*—Dr. Alfred Stengel—all to succeed themselves. *Archives of Dermatology and Syphilology*—Dr. Harold N. Cole to succeed Dr. W. T. Corlett. *Archives of Surgery*—Dr. Alton Ochsner to succeed Dr. Hugh Cabot. Committee on Scientific Research—Dr. Martin H. Fischer to succeed himself.

PUBLICITY OF INCOME TAX RETURNS

The Board of Trustees disapproved of the giving of publicity to income tax returns, and the director of the Bureau of Legal Medicine and Legislation was instructed to appear at the hearing on this new requirement and to present the views of the Board of Trustees.

APPROPRIATIONS

Appropriations were made for conducting the work of the various councils, bureaus and committees in the headquarters office as well as for exhibits and for research work.

MEDICAL BROADCASTS

Columbia Broadcasting System

The American Medical Association broadcasts on a western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4:30 to 4:45, central standard time. The next three broadcasts will be delivered by Dr. W. W. Bauer. The titles will be as follows:

March 7. **Headache.**
March 14. **Physical Defects.**
March 21. **Rickets.**

National Broadcasting Company

The American Medical Association broadcasts under the title "Your Health" on a Blue network of the National Broadcasting Company each Tuesday afternoon from 4 to 4:15, central standard time. The next three broadcasts will be as follows:

March 5. Surgery in Diabetics, Leland S. McKittrick, M.D., who will speak from the National Broadcasting Company's studios in Boston, by special arrangement.
March 12. Food and Drug Law Revisions, Paul N. Leech, Ph.D.
March 19. White Collar Hazards, W. W. Bauer, M.D.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARIZONA

Bill Introduced.—H. 88 proposes to create a board of naturopathic examiners and to regulate the practice of naturopathy. Applicants for licenses must be high school graduates, or have an equivalent education, and be graduates of a school or schools of drugless therapeutics, approved by the board, requiring residential studies of not less than four years of eight months each. The bill states that "naturopathy, which includes all forms of physiotherapy, is hereby defined to be: A system of treating the abnormalities of the human mind and body by the use of drugless and nonsurgical methods, and includes the use of physical, electrical, hygienic, and sanitary measures incident thereto."

ARKANSAS

Bill Passed.—S. 141 has passed the senate, proposing to repeal the laws regulating the sale, distribution or possession of narcotics and to enact what apparently is the uniform narcotic drug act.

Eclectic Licentiates Must Register.—Within sixty days after Feb. 7, 1935, every licentiate of the Arkansas eclectic medical examining board must register with the secretary of the board. Failure to do so automatically suspends his right to practice. Registration must be accompanied by a fee of $2 if the licentiate is a resident of Arkansas and by a fee of $4 if he is a nonresident.

Bills Introduced.—S. 184 proposes to authorize cities and incorporated towns to impose occupational taxes on physicians practicing within their jurisdiction. S. 213, to supplement the state food and drug act, proposes to transfer the administration of that act to the state board of health. It is to be the specific duty of every prosecuting attorney to whom the state health officer or any health or food or drug officer or agent of any county shall present satisfactory evidence of any violation of the act to institute appropriate proceedings for the enforcement of the act. S. 267 proposes to require the homeopathic medical board, the eclectic medical board, the "State Medical Board of the Arkansas Medical Society," the board of osteopathic examiners, and the board of chiropractic examiners to file with the secretary of state a list of all persons who have been licensed within the past twenty years, giving the date the licenses were issued, the last known postoffice address of the licentiates and information as to whether the several licenses were issued after examination, or by reciprocity, or if granted on a diploma. The boards referred to are to file with the secretary of state such information with respect to all licenses to be issued in the future by them, within one week of the issuance of the licenses. H. 217, to supplement the pharmacy practice act, proposes (1) to define drugs as follows: "Drugs means any drug or compound listed in the United States Pharmacopia or the National Formulary, or both, which are [sic] used for the prevention, mitigation or cure of disease"; (2) to prohibit the retail sale and distribution of drugs, as defined, except by registered pharmacies, by physicians and by persons in communities not accessible to a registered pharmacy, licensed by the board of pharmacy to sell and distribute drugs "conforming to the standards set by the United States Pharmacopia, or the National Formulary, or both," and (3) to permit a court on the application of the board of pharmacy to enjoin the operation of any store not complying with the pharmacy laws.

CALIFORNIA

Correction.—*Bill Introduced.*—S. 155 proposes to amend the medical practice act so as to authorize the board of medical examiners to issue a physician's and surgeon's certificate to an applicant who, although failing to furnish documentary evidence satisfactory to the board that he has completed a resident course of instruction fulfilling the requirements of the act, presents a diploma issued to him by a medical school approved by the board, and in addition files satisfactory documentary evidence of having either completed the fourth year in an approved medical school in the United States or having served at least one year in residence in a hospital in the United States approved by the board for internship. The item in THE JOURNAL, February 9, page 480, indicating that this bill tended to lower educational requirements, was based on an erroneous construction of the language of the bill.

Bills Introduced.—S. 820, to amend the medical practice act, proposes (1) to require persons who are licentiates of the board of osteopathic examiners on or before the first day of January annually to pay to the secretary-treasurer of the osteopathic board an annual registration fee of $5 and (2) to provide that, in lieu of the requirement that an applicant for a license by reciprocity must have been a resident of the state which issued the certificate used as the basis of application for one year subsequent to the issuance of such certificate, the board may accept evidence of two years of licensed practice in another state. A. 1009 proposes to raise to $20 the annual permit fee required of clinics and dispensaries. A. 1046 proposes to make it lawful for any practitioner of the healing art to enter into contracts or agreements with any of his patients to furnish them professional services or hospitalization and to exempt such agreements from the provisions of the insurance law. A. 1096 and A. 1097 propose to provide for the establishment of systems of health service insurance. These bills, however, were introduced by title only and presumably the committee to which they were referred, Social Service and Welfare, is to draft the bills. A. 1202, to amend the law requiring hospitals, pharmacies and physicians treating persons suffering from wounds inflicted by knives, guns or other deadly weapons, to report such facts to appropriate police officials, proposes to require such reports of "every person who renders or assists in rendering any treatment, aid or service to any such injured person." Reports are to be required to be made immediately after first treating or caring for such persons. A. 1552 proposes to require applicants for licenses to practice any form of the healing art, as a condition precedent to examination by their professional boards, to pass an examination to be given by a state board of qualifying certificate examiners in at least five of the following subjects: anatomy, physiology, chemistry, physics, botany, zoology, biology, hygiene, bacteriology and English. The board of qualifying certificate examiners is to be appointed by the Regents of the University of California and is to consist of five members, one member selected from the faculty of the University of California, one from the faculty of Stanford University, one from the faculty of the University of Santa Clara, one from the faculty of the University of Southern California, and one from the faculty of the California Institute of Technology. The members of this board are to be selected because of their knowledge of the fundamental sciences enumerated. No member of the board is to be actively engaged in the practice of the healing art. A. 1690, to amend the workmen's compensation act, proposes that when an injured workman suffers from any disease or other physical impairment which delays or prevents the cure or relief from the disability caused by an industrial injury the employer is to be liable only for the reasonable cost of such medical, surgical and hospital treatment, including nursing, as would have been required to cure or relieve the injury if such illness or physical impairment had not existed. A. 1918, to amend the workmen's compensation act, proposes that the records of any hospital with respect to services rendered to any injured workman shall be exhibited to the patient or to his representative. The injured workman or his representative is to be permitted to make copies of such records including, but not restricted to, photostatic copies. A. 1925, to amend the law relating to the use and disposition of unclaimed dead bodies, proposes that such bodies may be used for the purpose of instruction and study in the promotion of chiropractic education. A. 2158 proposes to make it unlawful for any hospital, clinic, physician or other person or institution possessing records concerning the condition of health of any person made while said person was in the care of such person or institution to refuse to exhibit such records to an attorney at law, designated by the patient in writing, and to allow copies of the records to be made.

COLORADO

Bill Introduced.—S. 228 proposes to make it the duty of any physician, nurse or midwife, assisting in or in charge at the birth of any infant, or having its care after birth, to treat its eyes with a prophylaxis approved by the state board of health. This treatment is to be given as soon as practicable after birth but always within one hour.

Bills Passed.—H. 138 has passed the house, proposing to repeal the laws regulating the sale, distribution or possession of narcotic drugs and to enact what appears to be the uniform narcotic drug act. H. 557 has passed the house, proposing to prohibit the retail sale or distribution of barbital or other hypnotic or somnifacient drugs except on the prescription of a duly licensed physician, dentist or veterinarian. The prohibited drugs are barbital, malonylurea, sulphonethylmethane (trional) sulphonmethane (sulphonal), diethyl-sulphon diethylmethane (tetronal), paraldehyde, chloral or chloral hydrate.

CONNECTICUT

Dr. Chambers Gives Ferris Lecture.—Robert Chambers, Ph.D., research professor of biology, New York University, New York, presented the Harry Burr Ferris Lecture in Anatomy at Yale University School of Medicine, New Haven, January 11. His subject was "Mechanics of Cell Division." It was illustrated by micromotion pictures of dividing cells manipulated by a microdissection technic.

Cancer Conferences.—A series of conferences on problems relating to cancer research was conducted, January 24-31, at Yale University School of Medicine, New Haven, by Dr. Ernest Laurence Kennaway, director of the Research Institute of the Cancer Hospital, London. The purpose was an interchange of ideas between investigators in related fields. They were made possible by the trustees of the Anna Fuller Memorial Fund, established in 1931 by the bequest of the late Egbert C. Fuller of New Haven for the study of cancer.

Social Aspects of Medicine.—Edward Sapir, Sc.D., professor and head of the department of anthropology, Yale University, New Haven, made an address on "Human Beings as Personalities," March 4, in the series of lectures on the backgrounds of medical practice, which opened at the university January 14. These lectures are under the auspices of the department of public health of the university and are designed to help medical students especially to gain a broader view of human society and the rôle of medicine in it. Dr. Sapir's lecture, February 18, on "Human Beings as Defined by Culture," was also included in the series. The first three lectures were given by Dr. Henry E. Sigerist, director, Institute of the History of Medicine, Johns Hopkins University, Baltimore.

Bills Introduced.—S. 389 and S. 396 propose to require both parties to proposed marriages, as a condition precedent to obtaining licenses to wed, to present statements from licensed physicians that both parties have submitted to a Wassermann or Kahn or other similar standard laboratory blood test and that the result of such test has proved negative. H. 241, to supplement the naturopathic practice act, proposes to authorize the board of naturopathic examiners to issue a license to any naturopath who was engaged in practice within the state prior to July 1, 1923, and who is a graduate of a legally chartered, reputable school or college of naturopathy approved by the board. H. 443 proposes to appropriate $1,000 to the state department of health to be used for such treatment of indigent typhoid or paratyphoid fever germ carriers as may be necessary to relieve them of the carrier state. H. 577 proposes that on the conviction of a woman for violating the law prohibiting prostitution and lewdness she shall be examined for venereal disease. If she is found infected she is to be placed under treatment and is to be detained until she is no longer a menace to the public health. H. 633 proposes to amend the law requiring physicians and midwives in attendance at the birth of a child to instil a prophylactic solution in the eyes of the baby by requiring such prophylactic solutions to be approved by the state department of health. H. 814 proposes that any person, committed to any penal or charitable institution by any court, who is afflicted with any venereal disease, be detained in such institution and treated until he may be discharged therefrom without danger to the public health. H. 853, to amend the medical practice act, proposes that "the use of the roentgen or x-ray or of radium in any manner for the treatment of any person shall be deemed to constitute the practice of medicine and surgery." H. 1162, to amend the naturopathic practice act, proposes to raise the annual registration fee required of licentiates to $5. H. 1163, to amend the workmen's compensation act, proposes to permit chiropractors to render the "medical" treatment which the employer is required to furnish an injured workman.

DISTRICT OF COLUMBIA

Medical Bills in Congress.—S. 1016 has been reported to the Senate, proposing to empower the health officer of the District of Columbia to authorize the disinterment and reinterment of bodies in cases in which death has been caused by certain contagious diseases (S. Rept. No. 124).

GEORGIA

Bills Introduced.—H. 204 proposes to authorize the sterilization of certain socially inadequate inmates of state institutions. H. 561 proposes, among other things, to levy an annual occupational tax of $15 on practitioners of medicine, osteopathy, chiropractic, chiropody and dentistry. H. 178 proposes to repeal the laws regulating the sale, distribution or possession of narcotic drugs and to enact what apparently is the uniform narcotic drug act.

Bills Passed.—S. 82 has passed the senate, proposing to create a board of physiotherapy examiners and to regulate the practice of physiotherapy. The practice of physiotherapy is defined as "the diagnosis and treatment of human ailments by the use of any natural force or agency, the basis of which is water, heat, sunlight, electricity or electrically produced energies, mechanical appliances, ultra-violet light, infra-red light, manipulations, corrective exercises, dietetics, massage, external applications and mineral baths." The bill proposes to prohibit anybody but a licentiate of the board from practicing physiotherapy as above defined but exempts (*a*) persons authorized by law to practice medicine and surgery and (*b*) persons who at the time of the enactment of the bill are members of the Georgia State Association of Physical Therapy or who have been engaged in the practice of physiotherapy for one or more consecutive years prior to the enactment of the bill. Applicants for licenses must be graduates from high schools or have equivalent education, must have studied physiotherapy for two years in a school of physiotherapy, approved by the board, and must pass a satisfactory examination in histology, anatomy, physiology, chemistry, pathology, diagnosis and treatment, bacteriology, massage, therapeutics, clinical physiotherapy and such added subjects as shall subsequently be taught by accredited schools of physiotherapy. S. 60 has passed the senate, proposing to repeal the laws regulating the sale, distribution or possession of narcotic drugs and to enact what apparently is the uniform narcotic drug act.

ILLINOIS

Bills Introduced.—H. 319 proposes that no one shall be employed to teach in the common schools of the state who does not present a physician's certificate showing that the applicant is free from contagious, infectious or communicable diseases. H. 320, to amend the medical practice act, proposes to authorize the revocation of the license of any practitioner who knowingly issues "a false certificate to any person to aid such person to obtain an appointment as a teacher in the schools of the state and showing such person to be free from contagious, infectious and communicable diseases."

Chicago

Lectures in Ophthalmology.—Dr. Karl Lindner, professor of ophthalmology, University of Vienna, will give a series of lectures at Northwestern University School of Medicine, April 9-12. He will discuss retinal detachment, trachoma, pathology underlying fundus diseases, and bacteriology of the eye. There will be a charge of $10 for the course. Reservations may be made with Dr. Earle B. Fowler, 55 East Washington Street.

Faculty to Present Program.—Members of the faculty of the University of Illinois College of Medicine will present the program before the Chicago Medical Society at its meeting, March 6. Drs. George B. Hassin and Eric Oldberg will discuss, respectively, the clinicopathologic features and surgical treatment of spastic paraplegias, and Drs. H. Douglas Singer and Abraham A. Low will consider "Psychotic Symptoms and Their Significance."

INDIANA

Bills Introduced.—H. 365 proposes to authorize the construction and maintenance of hospitals by cities of the fourth and fifth classes. Such hospitals are to be open to all persons on reasonable terms and are also to be open on reasonable terms to all physicians who desire to place patients therein. S. 234 proposes to authorize the establishment of an additional state hospital for the treatment of tuberculosis.

IOWA

Tuberculosis Survey.—Linn County has been selected for a tuberculosis survey, according to the bulletin of the county medical society, to be made as a federal public health project. Its purposes are to determine the physical condition of persons who have been patients in a tuberculosis sanatorium, to examine tuberculosis contacts by means of diagnostic tuberculin and the x-rays, and to do mass tuberculin testing when feasible and desirable locally. State and local health agencies are cooperating in the project, which was to have begun early in February.

Lectures for the Public.—The speakers' bureau of the Iowa State Medical Society sponsored a course of health lectures for lay audiences when it opened a series, January 16, in Grinnell. Dr. Milford E. Barnes, Iowa City, was the speaker on infectious diseases and their control. Dr. Thomas U. McManus, Waterloo, discussed the common cold, January 23; Dr. Arthur Steindler, Iowa City, infantile paralysis, January 30, and Dr. Douglas N. Gibson, Des Moines, February 6, accidents. Should the response to these lectures be favorable, the bureau plans to present similar series in other communities.

KANSAS

Bills Introduced.—H. 357 proposes to authorize the state board of health to secure, prepare and distribute infantile paralysis serum to serum stations throughout the state. H. 471 and S. 411 propose to authorize Fort Hays Kansas State College to provide local and traveling clinics and adequate psychologic clinical facilities for unusual and abnormal children of school age. H. 516, to amend the law relating to the qualification and personnel of the state board of health, proposes to authorize the governor to appoint as a member thereon a licensed dentist.

Bill Passed.—H. 257 has passed the house, proposing that, whenever in the opinion of the warden of the state penitentiary at Lansing, asexualization will be beneficial to the physical, mental or moral condition of any recidivist confined therein, or any inmate who is a sexual pervert or degenerate, or any convict serving a life term for premeditated murder, or any convict who escapes or attempts to escape from the penitentiary, it shall be the duty of the board of administration to institute proceedings looking toward the sexual sterilization of such persons.

MAINE

Bills Introduced.—S. 394, to amend the chiropractic practice act, proposes (1) to require an applicant for a license, in addition to the qualifications now required by law, to be a graduate of a legally chartered chiropractic college in good standing requiring personal attendance and conferring degrees on the completion of a course of four school years of not less than six months each, and of a total of 2,600 sixty minute school hours; (2) to provide that a license to practice chiropractic shall entitle the holder thereof to practice chiropractic in all its branches as taught and practiced by the recognized schools and colleges of chiropractic, but it shall not authorize the practice of obstetrics so far as the same relates to parturition or to administration of drugs or the performance of surgical operations with the use of instruments; and (3) to define chiropractic as "the science of locating and correcting interference with nerve transmission and expression, without the use of drugs or surgery, by such methods as are taught in reputable chiropractic schools and colleges." H. 1348, to amend the chiropractic practice act, proposes to eliminate those provisions of the act requiring applicants for licenses to pass examinations.

MASSACHUSETTS

Dr. Cannon to Lecture in China.—Dr. Walter B. Cannon, George Higginson professor of physiology, Harvard Medical School, Boston, will serve as visiting professor of physiology at the Peiping Union Medical College from April 15 to June 1, *Science* reports. He plans to attend the International Physiological Congress in Leningrad and Moscow in August.

Dr. Faxon Appointed Director of Massachusetts General Hospital.—Dr. Nathaniel Wales Faxon, since 1922 director of Strong Memorial Hospital, University of Rochester, Rochester, N. Y., has been appointed director of the Massachusetts General Hospital and the Massachusetts Eye and Ear Infirmary, Boston. Dr. Faxon, who graduated from Harvard Medical School in 1905, was assistant director of the Massachusetts General Hospital from 1919 to 1922. He is 54 years old and a former president of the American Hospital Association. He will succeed Dr. George H. Bigelow, who has been missing since December 1934.

MICHIGAN

Faculty Farewell to Dr. Novy.—An embossed plaque was presented to Dr. Frederick G. Novy, retiring dean of the University of Michigan Medical School, Ann Arbor, at a special executive faculty meeting, February 7. The meeting also marked the induction into office of Dr. Albert C. Furstenberg as dean. The resolution inscribed on the plaque acknowledged Dr. Novy's years of service to the university and noted the regret of his colleagues that he will no longer be associated with them.

Bills Introduced.—H. 212 proposes to exempt from the provisions of the state sales tax law proceeds from the retail sale of medicines. S. 121, to amend the chiropractic practice act, proposes that all moneys received by the board of chiropractic examiners be paid promptly into the state treasury and be credited to the general fund of the state to be disbursed as otherwise appropriated by the legislature. Under the present law the board is required to pay monthly all moneys received to the state treasurer.

MINNESOTA

Bill Passed.—H. 7 has passed the house, proposing to make it unlawful for any person to raise marijuana or prepare or manufacture marijuana into any product usable for smoking purposes.

Jackson Lecture Postponed.—Dr. Logan Clendening, professor of clinical medicine, University of Kansas School of Medicine, will deliver the second Clarence Martin Jackson lecture of the University of Minnesota School of Medicine March 8 instead of February 20, as formerly announced. Dr. Clendening's lecture will be entitled "The Human Side of Medicine."

Society News.—Speakers before the Hennepin County Medical Society at its February meetings included Drs. Elmer L. Sevringhaus, Madison, Wis., February 4, on "Diagnostic and Therapeutic Questions in the Menopause"; February 6, Emil Goetsch, Brooklyn, "Phases of the Goiter Problem with Particular Reference to Iodine Therapy"; February 13, Aaron Friedell, Minneapolis, "Medical Cooperation with Independence or State Medicine—Which Shall It Be?" and Chester A. Stewart, Minneapolis, "Primary Tuberculosis Infection: An Asset or a Liability"; February 20, William B. Roberts, "Relation of Vital Capacity and Allied Tests to Circulatory Capacity of Ambulant Cases" and Gilbert Seashore, "Duties, Responsibilities and Powers of the Coroner's Office." Dr. William A. O'Brien, St. Paul, conducted a pathologic conference, February 27. Plans to employ a full time executive secretary have been approved by the executive committee of the society.

MISSOURI

Bill Passed.—S. 28 has passed the senate, proposing to make it unlawful for any person to cultivate, cure, prepare, distribute in any manner or possess marijuana. Physicians, dentists and osteopaths, however, are to be permitted to prescribe marijuana.

Bills Introduced.—H. 423 proposes to repeal the laws regulating the sale, distribution or possession of narcotic drugs and to enact what apparently is the uniform narcotic drug act. H. 307, to amend the medical practice act, proposes (1) that applicants for licenses, in addition to the qualification now required by law, be at least 21 years of age, be citizens of the United States, have actually lived in the United States one year prior to the making of their applications, be able to read and write in the English language, and have received a diploma from some medical college in the United States "prescribed [sic] by the board and/or recognized and approved by the American Medical College Association"; (2) that the board of health "shall have the exclusive right to determine the reputability of medical schools or at its discretion may accept a medical school recognized and approved by the American Medical College Association," and (3) to raise from $15 to $25 the fee required of applicants.

MONTANA

Bill Introduced.—H. 360, to amend the medical practice act, proposes to forbid so-called "Chinese Doctors," "Chinese Herb Doctors," "Chinese Specialists," and "Chinese Herbalists" from selling, advertising, prescribing, directing or recommending any herbs, roots, barks or berries or any compound, liquid or otherwise, for the cure, relief or palliation of any ailment or disease of either mind or body, without a license to practice medicine.

NEBRASKA

Society News.—Drs. Donald R. Black and James G. Montgomery, Kansas City, Mo., addressed the Omaha-Douglas County Medical Society, Omaha, February 12, on "Modern Treatment of Diabetes" and "Surgery of the Spleen," respectively.

Bill Introduced.—S. 326 proposes to authorize the county board of commissioners or supervisors of any county to create a public health department to prevent the introduction and spread of contagious, infectious and malignant diseases in the county. Such county public health department, when created, is to assume the duties of the health departments in villages, towns and cities in counties of less than 40,000 population. In counties where there are cities of 40,000 or more inhabitants, the governing bodies may make arrangements with the county boards to consolidate their public health departments or to coordinate the public health work. Two or more contiguous counties are also authorized to make arrangements to consolidate their public health departments and to coordinate their public health work.

NEVADA

Society News.—Dr. Albert G. Clark, Boulder City, addressed the Clark County Medical Society, January 8, on "Renal Tuberculosis."——A paper on "Blood Transfusion" was presented before the Washoe County Medical Society at its meeting, January 8, by Dr. Lawrence Parsons, Reno.

Bill Introduced.—S. 57 proposes to require applicants for licenses to practice medicine, osteopathy, chiropractic, naturopathy or any other system of healing that may hereafter be legalized in the state, as a condition precedent to examination by their professional boards, to pass examinations to be given by an impartial board in human anatomy, human physiology, human pathology, chemistry and hygiene. The examining board is to be appointed by the Board of Regents of the University of Nevada from the faculties of the University of Nevada. No member is to be actually engaged in the practice of any method or system of healing or have any financial interest in or be a member of the faculty of any school of medicine and surgery, osteopathy, chiropractic or any other school of healing.

NEW HAMPSHIRE

Bills Passed.—H. 196, proposing to limit the administration of anesthetics to licensed physicians and dentists, passed the house but has been recalled by the house public health committee for redrafting. H. 270 has passed the house, proposing to amend the chiropody practice act so as to define a chiropodist as "one who examines, diagnoses, or treats medically, mechanically, surgically, or by electrical and manipulating means, or by bandaging and strapping, the ailments of the human foot, not requiring the use of anesthetics other than local."

NEW JERSEY

Bills Introduced.—S. 134 proposes to grant to physicians liens for their reasonable charges in treating persons injured by the negligence of others, on any judgments or settlements obtained by such injured persons by reason of their injuries. Such liens, however, are to be limited to an amount not over 25 per cent of the amount of said judgments or settlements. The existing law on the subject contains no such limitation. A. 142, A. 143 and A. 144, to supplement the workmen's compensation act, are companion bills, introduced at the same time, and constitute a single operative arrangement for preventing, controlling, and compensating for silicosis. A. 151, to amend the laws regulating the practice of chiropody, proposes to create an independent board of chiropody examiners, to examine and license applicants for licenses to practice chiropody. Under the present law, the state board of medical examiners examines and licenses applicants. A. 182, to amend the laws regulating the sale, distribution or possession of narcotic drugs, proposes to prohibit any person other than a dealer in surgical instruments, an apothecary, a physician, a dentist, a veterinarian, a nurse or an intern, from possessing a hypodermic needle or hypodermic syringe, or any other instrument adapted for the use of cocaine or narcotic drugs by subcutaneous injections, unless such possession is obtained by means of the prescription of a physician, dentist or veterinarian, issued within the preceding year. A. 184, to amend the workmen's compensation act, proposes to ameliorate the conditions under which workmen can receive compensation for hernias arising in the course of employment. The bill proposes that when there is traumatic hernia resulting directly from the application of force directly to the abdominal wall, either puncturing or tearing it, compensation will be allowed. All other cases will be compensable

provided a preponderance of proof is offered that the hernia was caused by such sudden effort or severe strain that the descent of the hernia followed within twenty-four hours of the cause, that there was severe pain in the hernial region, that the workman was compelled to cease work within twenty-four hours, that the foregoing facts were of such severity that they were noted by the workman and communicated to his employer within forty-eight hours after the occurrence of the hernia, and that there was such physical distress that the attendance of a physician was required within forty-eight hours after the occurrence of the hernia. A. 185, to amend the law providing liens for hospitals and physicians caring for persons injured through the negligence of others, on rights of action, claims and demands accruing to the injured persons by reason of their injuries, proposes to make the lien applicable only to hospitals. A. 238, to amend the provisions of the medical practice act relating to osteopathy, proposes to authorize such osteopaths to practice surgery as, after graduating from a four year course in a reputable osteopathic school, including courses in the principles and practice of surgery, have served as interns for at least one year in a reputable hospital or postgraduate school or as full time assistants to licensed surgeons. The bill proposes to eliminate those provisions in the present law which specifically prohibit osteopaths from prescribing or administering medicine and also proposes to denominate the practice of osteopathy as the practice of osteopathic medicine which, the bill states, "shall include the diagnosing, treating, operating or prescribing for any human disease, pain, injury, deformity, physical or mental condition."

NEW MEXICO

Bill Introduced.—S. 41 proposes to amend the law prohibiting the planting, cultivating, production or sale or other distribution of cannabis indica so as to prohibit also its possession except on the written prescription of a licensed physician.

Bill Passed.—H. 181 has passed the house, proposing to create a board of naturopathic examiners and to regulate the practice of naturopathy. Naturopaths who have had actual practice in the state for two years are to be licensed without examination. Other applicants must be graduates of chartered schools or colleges of naturopathy teaching resident courses of not less than 3,600 hours and which require a high school education or its equivalent as a condition to admittance. A license to practice naturopathy is to entitle the holder thereof "to administer any and all natural and constructive treatment in human ailments which are calculated to relieve suffering and/or restore health without the internal use of medicines, drugs or iodines, and to issue birth, health and death certificates."

NEW YORK

Practitioners' Clinics at Rochester. — Strong Memorial Hospital, Rochester, began a series of clinics for registered physicians, January 17, which will be continued through November on the third Thursday of each month. Dr. Charles L. Scudder, Boston, was guest clinician at the first meeting, discussing "The Bases of the Treatment of Fractures." Later clinics will be conducted by members of the staff.

Health at Utica.—Telegraphic reports to the U. S. Department of Commerce from eighty-six cities with a population of 37 million, for the week ended February 16, indicate that the highest rate (24.2) appears for Utica, and the rate for the group of cities as a whole, 12.6. The mortality rate for Utica and for the group of cities as a whole for the corresponding week of 1934 was 13.6. The annual rate for the group of cities for the seven weeks of 1935 was 13.1, as compared with 12.6 for the corresponding period of last year. Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may tend to increase the death rate.

Bills Introduced. — S. 957, to amend the education law, proposes to authorize the establishment of colleges of natural therapy. The commissioner of education is to prescribe rules and regulations for the establishment and regulation of such colleges, which are to be authorized to issue degrees to matriculated students who have completed a four year course of study. The bill states that "a doctor of natural therapy shall be deemed to be a person who has successfully taken a course of study prescribed by the regents of the University of the State of New York in a college recognized by it in: 1. Hydrotherapy (mineral waters). 2. Balneology (mineral bathing). 3. Cibology (preparation of foods for the sick). 4. Dietology (dietetics and metabolism). 5. Hirudology (application of leeches). 6. Hygiene (sanitation, sterilization, antisceptic [sic] and aseptic work). 7. Clysmology (lavage of stomach, bladder and colonic irrigation). 8. Laxatology (the relaxation of muscles, tendons, joints). 9. Massage (kneeding [sic]; exercise; under water exercise). 10. Phlebotomy (application of cupping, plasters, salves). 11. Potiology (drinks, teas in sickness). 12. Rotology (rotation of various parts of the body to relax and release). 13. Electrolysis (removal of hair by electricity). 14. Scalp treatment (to prevent hair falling and baldness). 15. Physiotherapy (the application of diatermy [sic], ultraviolet and other radiations under physicians orders)." The bill is not clear whether or not such a "doctor" would be permitted, without the examination and licensure required by the medical practice act, to practice the tenets of this school of natural therapy. A. 123 and A. 166 propose that whenever it is relevant to the prosecution or defense of an action, the court may require any party to the action and the child of any such party to submit to blood tests to be made by duly qualified physicians under such restrictions and directions, as the court or judge deems proper. The results of the tests made by the physicians are to be admissible in evidence.

New York City

Diphtheria Immunization Record.—The largest number of diphtheria immunizations in any year since 1929, 185,586, was reported by Dr. John L. Rice, health commissioner, for the year 1934. Of the number of children immunized 117,569, or 64 per cent, were under 6 years old. In 1929, when the Diphtheria Prevention Commission began its intensive drive, 211,985 children were immunized. Since this commission ceased to function in 1931, the work has been carried on by the health department without outside funds. In 1932 there were 166,243 immunizations; in 1933 there were 161,611. Deaths in the three year period 1932-1934 fell to an average of 133 per year, contrasted with 750 when the demonstration was begun in 1929.

Personal.—Dr. Jacob J. Golub, director of the Hospital for Joint Diseases, will be consultant to the building committee of the Rothschild-Hadassah-University Hospital in Jerusalem, which is shortly to be built.——Roy Chapman Andrews, explorer and naturalist, has been appointed director of the American Museum of Natural History, to succeed George H. Sherwood, who resigned. Mr. Andrews has been connected with the museum for many years as the leader of field expeditions into Central and Far Eastern Asia.——Dr. Adam Eberle, medical superintendent of Kings County Hospital, has been appointed acting general medical superintendent of all city hospitals.——Dr. John F. Erdmann, for more than twenty years director of the department of surgery of the New York Post-Graduate Medical School and Hospital, was the guest of honor at the annual dinner of the faculty association, January 26. A bust of Dr. Erdmann was unveiled at the dinner and it was announced that a new amphitheater at the school is named for him.

NORTH CAROLINA

Bill Introduced.—H. 293, to amend the workmen's compensation act, proposes to make some twenty-five occupational diseases compensable, included among which are anthrax, compressed air illness, chrome ulceration, silicosis, asbestosis, tenosynovitis, bursitis, miners' nystagmus, and poisoning from arsenic, brass, zinc, manganese, lead, mercury, phosphorus, carbon bisulphide, methanol, naphtha, halogenated hydrocarbons, benzol, nitro and amido derivatives of benzol, radium, carbon monoxide, sulphuric, hydrochloric and hydrofluoric acid.

NORTH DAKOTA

Bill Introduced. — H. 201 proposes a procedure whereby county commissioners may levy a tax of not exceeding 6 mills on every taxable dollar of real estate and personal property within the county to pay for medical, surgical and hospital care for all of the residents of the county. Residents apparently are to be permitted to choose any physician or hospital they desire and the county will pay for the services according to a stated schedule.

OHIO

Bills Introduced.—S. 95 proposes to authorize the asexualization of feebleminded and epileptic inmates or patients of hospitals or other state or county institutions supported in whole or in part by public funds. S. 97 proposes to amend those provisions of the medical practice act relating to the examination to be given by the state medical board to osteopaths who desire to practice surgery and obstetrics. The bill proposes that the grades made by an osteopath in the examinations in anatomy, physiology, obstetrics, surgery and diagnosis, conducted by the state medical board, shall be averaged

by the state medical board with the various grades received in his examination before the osteopathic examining committee. The bill proposes, too, to eliminate that provision of the present law which provides that an osteopath licensed to practice surgery and obstetrics shall not be permitted to prescribe or administer drugs, except anesthetics and antiseptics. It proposes also that the signature or witness of an osteopathic physician and surgeon shall be accorded the same rights and privileges as are accorded the signature of a doctor of medicine and surgery. S. 105, to amend the workmen's compensation act, proposes to make the following occupational diseases compensable, in addition to the diseases now stated in the law: stone workers or grinders' phthisis, pneumoconiosis and silicosis. H. 14, to amend the workmen's compensation act, proposes to make the following occupational diseases compensable, in addition to the diseases now stated in the law: silicosis, silicatosis, asbestosis and anthracosis.

OKLAHOMA

Bill Passed.—S. 14 has passed the senate, proposing to authorize the sexual sterilization of habitual criminals and to define as a habitual criminal any person convicted to final judgment three times for the commission of felonies.

OREGON

Bill Passed.—H. 180 has passed the house and the senate, proposing to limit the distribution of appliances, drugs or medicinal preparations intended or having special utility for the prevention of conception and/or venereal diseases, to licensed physicians and to persons licensed to do so by the state board of pharmacy.

Bills Introduced.—S. 250 proposes to repeal the laws regulating the sale, distribution and possession of narcotic drugs and to enact what apparently is the uniform narcotic drug act. H. 266 proposes that any person using the title "Doctor" in connection with the practice of any form of the healing art shall use in conjunction therewith the appropriate designation of the branch of the healing art he is licensed to practice. H. 373 proposes to authorize the state board of health to make such rules and regulations as it deems necessary for the operation of laboratories in which human or animal body fluids, secretions or excretions are examined for the determination of the presence or absence of an infectious agent. Every person, corporation or municipal corporation maintaining such a laboratory is required to register annually with the state board of health. H. 377, to amend the laws relating to the state board of health, proposes that the secretary of the board, who ipso facto is the state health officer, shall have a degree of doctor of medicine from a reputable medical school, shall have been licensed to practice medicine in the state, and shall have had at least five years' experience as a full time health officer or two years' residence at a recognized school of public health. The present law merely requires the secretary to be a regularly graduated and reputable physician.

PENNSYLVANIA

Society News.—Dr. I. Newton Kugelmass, New York, addressed the Cambria County Medical Society, February 14, on "Recent Advances in Treatment of Nutritional Disturbances in Infancy and Childhood."

Philadelphia

Society News.—Speakers at a meeting of the Philadelphia Laryngological Society, February 5, were Drs. Henry Dintenfass, "Accidental Injury of the Lateral Sinus"; Louis H. Clerf, "Cough—From the Rhinolaryngological Viewpoint," and Gabriel Tucker, "Difficulty in Swallowing—Esophagoscopic Observations."——The Philadelphia County Medical Society devoted its program to a discussion of the barbiturates, February 13. Speakers were Drs. Harold W. Jones, on "Clinical Manifestations and Treatment of Barbiturate Poisoning and Barbiturate Idiosyncrasy," and Thomas Fitzhugh Jr., "Rôle of Amidopyrine and Other Medicinal Substances in the Etiology of Agranulocytic Angina" and John Howard Graham, M.A., professor of chemistry at Temple University, "Toxicity of Barbituric Acid."

SOUTH CAROLINA

Bills Introduced.—S. 204, to amend the insurance law, proposes to authorize any ten or more persons to associate themselves together as a mutual protection association for the indemnifying of each other for losses on the assessment plan, and not for profit, "to insure the lives or health of . . . members against death or disability by accident or disease, or hospitalization benefits." H. 21 proposes to create a board of chiropody examiners and to regulate the practice of chiropody [podiatry]. "'Chiropody,' sometimes called podiatry," states the bill, "shall for the purposes of this act mean the diagnosis, surgical, medical and mechanical treatment of ailments of the human foot, except the correction of deformities requiring the use of the knife, amputation of the foot or toes, or the use of an anaesthetic other than local." H. 228 proposes that any person or corporation manufacturing, or selling arsenate of lead or other poisonous article, color such article, plainly marking on its container in red the word "poison." H. 308 proposes to authorize the sexual sterilization of certain socially inadequate inmates of state institutions.

SOUTH DAKOTA

Bill Introduced.—S. 82 proposes to authorize county subcommissions for the control of the feebleminded to order the sexual sterilization of feebleminded persons they may determine to be capable of procreation.

TENNESSEE

Bills Introduced.—S. 297, to amend the medical practice act, proposes (1) to provide that members of the board of medical examiners be appointed by the governor from a list of names submitted by the Tennessee State Medical Association, and (2) that no license shall be revoked until the licentiate has been notified in writing of the charges against him and has been given an opportunity for a full and complete hearing, with the right to be represented by counsel. H. 473 proposes to make the incurable insanity of either spouse grounds for divorce.

TEXAS

Bill Introduced.—H. 464 proposes that no hospital shall be exempt from taxation unless it permits its facilities to be available to "each and every reputable physician" licensed by the state board of medical examiners.

UTAH

Bills Introduced.—H. 114 and S. 145 propose to authorize the department of registration to appoint a committee of three to examine applicants for licenses to practice massage and to exempt massage from the definition of the practice of medicine. H. 169 proposes to authorize the establishment of a hospital to be called the State General Hospital for the care and treatment of indigent sick.

VERMONT

Bills Introduced.—H. 203, to amend the osteopathic practice act, proposes to authorize the board of osteopathic examiners to refuse to issue licenses and to revoke licenses for the following causes: (1) conviction for procuring a criminal abortion, (2) obtaining practice or money by false or fraudulent representation, (3) assumption by an applicant or a licentiate of a name other than his own and (4) other immoral, unprofessional or dishonorable conduct. The phrase "unprofessional or dishonorable conduct" is to mean (1) advertising which has a tendency to deceive the public, (2) conviction of any offense involving moral turpitude, (3) habitual intoxication and (4) habitual use of habit-forming drugs. H. 162 proposes to limit the retail sale or distribution to licensed physicians and registered pharmacists of articles or medicinal preparations that may be used as prophylactics or contraceptives. H. 161 proposes that the provisions of the pharmacy practice act shall not apply to the sale in properly labeled original packages of the following drugs: bicarbonate of soda, citric acid, cod liver oil, epsom salt, magnesia, saltpeter, turpentine, quinine, cathartic pills, seidlitz powders, spirit of ammonia and spirit of camphor.

WASHINGTON

Bill Passed.—S. 32 has passed the house and the senate, proposing to eliminate from the criminal code those provisions prohibiting the possession, sale or other distribution, or the use, of contraceptives.

Bills Introduced.—S. 145 proposes to create a board of physio-medical examiners and to regulate the practice of physio-medicine and surgery. Applicants for such licenses must successfully pass a basic science examination before they may be examined by the board. The bill defines physio-medicine as "that system of medical practice which uses botanical and biological substances and derivatives therefrom for internal and external administration in conjunction with surgery and electrotherapeutical agents and all other manual and mechanical

manipulations for the correction of abnormal or diseased conditions of mind and body." S. 234 proposes that both parties to proposed marriages, as a condition precedent to their right to obtain licenses to wed, present certificates from licensed physicians showing that each is free from contagious or infectious venereal diseases. H. 385 proposes that actions for malpractice must be brought within two years, instead of three years, of the accrual of the cause of action. H. 397 proposes to prohibit the retail sale and distribution of veronal, barbital or any of its salts, derivatives or compounds, except on the prescription of a licensed physician, dentist or veterinarian. H. 382, to supplement the dental practice act, proposes to make it unlawful for any person, firm, or association engaged in the practice of dentistry to advertise in any manner any price or fee for any service or the price charged for any material to be used in the practice of dentistry.

WEST VIRGINIA

Bills Introduced.—H. 342 proposes to repeal the laws regulating the possession and distribution of narcotic drugs and to enact what the draftsman of this bill cites as the "uniform narcotic drug act." The bill, however, differs from the model uniform narcotic drug act in some important particulars. It omits the provisions in the model bill intended to limit the gross quantity of a habit-forming drug a person can buy in exempt preparations within a period of forty-eight hours. S. 69 and H. 160, to amend the workmen's compensation act, propose (1) to require the compensation commissioner to pay such sums for medical, surgical and hospital treatment as may reasonably be required to relieve an injured employee, the present law limiting such payments to $800, and (2) to eliminate those portions of the present law which prohibit the commissioner from paying for medical and hospital services furnished an injured workman if the workman is entitled under a contract connected with his employment or by reason of a subscription list, to receive medical, surgical and hospital treatment without further charge to him. S. 112, to amend the workmen's compensation act, proposes to make silicosis compensable. The bill proposes to create a "silicosis medical board," to consist of three licensed physicians, to which the compensation commissioner is to refer all claims for compensation on account of silicosis. The board is to investigate, examine and report its findings to the commissioner. S. 155 and H. 317, to supplement the insurance laws, propose to permit stock companies to incorporate under the general incorporation laws of the state. Companies so incorporated may issue policies providing "every coverage appertaining to accident and health insurance." Specifically, they may issue policies providing "reimbursement for expenses incident to personal injury, sickness or death," but they may issue also "policies of accident and health insurance covering personal injury, disablement or death by accident; disability resulting from sickness." The provisions of this bill may be construed to authorize a corporation organized under it to furnish directly to its policyholders medical, nursing, laboratory and hospital services.

WISCONSIN

Research on Hormones.—A grant of $57,500 from the Rockefeller Foundation has been accepted by the University of Wisconsin to continue research on hormones, which is carried on by Dr. Elmer L. Sevringhaus, professor of medicine; Frederick L. Hisaw, Ph.D., professor of zoology, and Leon J. Cole, Ph.D., professor of genetics.

Bills Introduced.—S. 160 makes it unlawful for any person to operate or experiment in any manner whatsoever on any living dog for any purpose other than the healing or curing of such dog. Any person, the bill proposes, violating the provisions of this bill shall be punished by a fine of from $100 to $500 and/or imprisoned for from three months to one year. A. 226 proposes to prohibit a pound master from (1) using or permitting any live animal in his possession to be used for experimental or commercial purposes or (2) turning over any animal in his custody to any person, school, university, research laboratory or experimental station to be used for medical, scientific or experimental purposes of any nature. A. 262 proposes to repeal the laws regulating the sale, distribution and possession of narcotic drugs and to enact what apparently is the uniform narcotic drug act. A. 188 proposes to make it the duty of any police officer who has in his custody any person whom he believes to be under the influence of an intoxicant to obtain from such person a sample of his blood or urine, if such sample can be obtained without objection from the prisoner, and make or cause to be made within twenty-four hours thereafter a test for the determination of its alcoholic content.

GENERAL

Grants Available for Research.—The Committee on Scientific Research of the American Medical Association invites applications for grants of money to aid in research on problems bearing more or less directly on clinical medicine. Preference is given to requests for moderate amounts to meet specific needs. For application forms address the Committee on Scientific Research at 535 North Dearborn Street, Chicago.

Two Free Public Health Surveys Offered.—The American Public Health Association and the U. S. Chamber of Commerce are cooperating in an offer of two free surveys in connection with the annual health conservation contests. One will be made in a city and the other in a county or district. The surveys will consist of analyses of the local health programs, the facilities and the extent to which these are meeting public health needs, and the final reports will include recommendations for readjustments or changes. The field staff of the public health association will make the surveys, choosing communities according to their need and the likelihood that they will make effective use of such a survey.

Medical Bills in Congress.—*Changes in Status:* S. 883 has been reported to the Senate, directing the retirement of acting assistant surgeons of the United States Public Health Service at the age of 64 years (S. Rept. No. 150). H. R. 5913, the War Department Appropriation Bill, has passed the House. Among other things, this bill authorizes an appropriation of $70,000 for the library of the Surgeon General's Office. It further proposes to limit the number of medical officers who may draw flying pay to five and to limit the flying pay of all nonflying officers to a maximum rate of $1,400 per annum. *Bills Introduced:* S. 1956, introduced by Senator McAdoo, California, proposes to provide for entry upon public lands for the purpose of establishing "health habitations." H. R. 5594, introduced (by request) by Representative McSwain, South Carolina, proposes to create in the medical department of the regular army a medical auxiliary corps.

Revision of Terminology.—At the request of the Anatomical Society of Great Britain and Ireland, the American Association of Anatomists has appointed a committee to consider, with a view to international agreement, a revision of the standard terminology of human gross anatomy (the BNA) which has been in use in American textbooks since its adoption in 1895. The committee, under the chairmanship of Dr. Clarence M. Jackson, professor of anatomy, University of Minnesota Medical School, is studying both the British proposal and another suggested revision prepared by a committee of the German Anatomical Society. For the benefit of those interested in solution of the problems involved in revising anatomic nomenclature, a triple list of the BNA and the British and the German revisions, in parallel, has been prepared. A limited number of copies are available for general distribution and may be obtained without charge from the secretary of the American Association of Anatomists, Dr. George W. Corner, University of Rochester School of Medicine, Rochester, N. Y.

Grants of National Research Council.—The National Research Council announces that funds for grants in aid of research are now available and that applications for grants must be filed on or before April 1. Action on these applications will be taken about the middle of May. At meetings in November and December 1934 the following grants were made in the field of medical science:

Dr. Garner Howard Bailey, associate professor of immunology, Johns Hopkins University School of Hygiene and Public Health, Baltimore, the heterophile antigens of bacteria.

David M. Greenberg, Ph.D., associate professor of biochemistry, University of California, Berkeley, the effect of diets low in magnesium on Vitamin G requirements.

Dr. Louis N. Katz, assistant professor of physiology, Division of Biological Sciences, University of Chicago, factors operating to modify the coronary blood flow.

Pearl Kendrick, bacteriologist, Michigan Department of Health, Grand Rapids, antigenic properties of bacillus pertussis.

Dr. Albert P. Krueger, lecturer in medicine, University of California, Berkeley, the nature of bacteriophage.

Dr. Orthello R. Langworthy, associate professor of neurology, Johns Hopkins University School of Medicine, Baltimore, control of the urinary bladder by the peripheral and central nervous system.

John P. Quigley, Ph.D., assistant professor of physiology, Western Reserve University School of Medicine, Cleveland, the rate of absorption of oxygen from the intestinal lumen of unanesthetized dogs.

Dr. Harold D. Senior, professor of anatomy, University and Bellevue Hospital Medical College, New York, anomalies of the limb arteries in embryos.

Application blanks for the new grants will be furnished on request to the secretary of the committee, 2101 Constitution Avenue, Washington, D. C.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Feb. 9, 1935.

Successful Corneal Grafting

In 1930-1931 Mr. J. W. Tudor Thomas evolved a successful technic in corneal grafting by experimental work on rabbits. He then applied it to the treatment of dense corneal opacities in man with remarkable success. At the Oxford Ophthalmic Congress last July he demonstrated a successful corneal graft on each eye, apparently the first of the kind on record. This patient, a woman, was recently demonstrated at a medical congress in Boston, Massachusetts. At a meeting of the Section of Ophthalmology of the Royal Society of Medicine, Mr. Thomas showed his fifteenth case of corneal grafting in man. The patient, a man, aged 57, suffered at the age of 17 from corneal ulcers, which left central corneal opacities and very defective sight. Seventeen years later, peritomy was performed on each eye. About twenty years ago the eyes became ulcerated again. Last June Mr. Thomas performed corneal grafting at the Central London Ophthalmic Hospital. Before operation the right eye showed a dense central corneal opacity, with considerable haze of the surrounding cornea and some degenerative epithelial changes in the opaque area. Vision amounted to finger counting at 15 inches. The left eye had still less vision —only hand movements. There was an extensive central leukoma with some superficial blood vessels passing on to it and a few small interstitial vessels. The periphery of the cornea was hazy. Unless in a familiar place, the patient had to be led about. A donor's eye became available when the right eye of a man, aged 60, was excised for choroidal sarcoma. A portion of cornea about 4⅓ mm. in diameter was removed by means of a trephine and scissors. The margin was cut in a shelving manner and the graft placed in a watch glass of sterile olive oil. A larger trephine (4⅔ mm.) was used to outline the piece to be removed from the middle of the patient's opaque left cornea and two cross sutures were inserted. The removal was then effected with trephine and scissors, the margins being cut shelving. Citrated saline solution and epinephrine were used to ensure freedom from adhesion of the iris. The leukoma consisted of comparatively soft tissue and was not very vascular. After the removal the pupil was seen to be small and in the center of the opening. The graft was laid on, the sutures were tied, 1 per cent scopolamine in olive oil was applied and a shield was placed on the eye, with gauze on the anterior surface. The operation was performed under cocaine anesthesia with premedication by pentobarbital sodium.

After the operation the eye progressed well without pain. There was only a little soft mucoid discharge. On the eighth day the stitches were removed. The graft was well in place, clear and united, flat and round, and the eye was hardly at all red. At fourteen days the graft was clear, with one minute white spot on the posterior surface near the lower margin. In the shelving margin of the graft a few small blood vessels took a circular course. From the eighth to the twentieth day the eyes were covered by pads and a bandage, and after that dark glasses were worn. On the thirty-third day vision was 1/60, on the thirty-fourth 2/60, and on the thirty-fifth 3/60. About this time he could read notices in shops at a distance of 2 yards. Four and a half months after operation the graft was clear with a small opacity near the lower margin and a similar but separate nodule on the iris, suggesting that the two were in contact at an earlier stage. He could see and was able to go about London by himself. Six months after operation his vision was 6/60.

Mr. Thomas has now treated sixteen cases of corneal opacity by grafting. Five were not really suitable cases. One case is too recent for report. In all the remaining ten suitable cases the graft became united. In one case the graft was successful but the small pupil did not correspond to the center of the graft. Seven cases can be termed "successful," the graft retaining considerable transparency and there being considerable improvement in vision.

Interruption in the Falling of the Birth Rate

Provisional figures for 1934 show an increase of 0.4 per thousand in the birth rate for England and Wales above the low record of 1933 and the only increase since 1920, except in 1928, when a slight rise of 0.1 followed the exceptional fall in the previous year. The figure for 1934 was 14.8 per thousand. The crude death rate was 11.8 and the infant mortality rate (deaths under 1 year per thousand live births) 59, which is 5 below 1933 and the lowest recorded, which was 60 in 1930.

No explanation is given of this slight rise in the birth rate following an almost uninterrupted fall, which has been in progress for more than half a century. In the decade 1871-1880 the annual rate averaged 35.4, and in 1926 it had been almost halved by the figure of 17.8 and in subsequent years more than halved. The rise is probably only a temporary interruption of the long progressive fall. It may be due to the improvement in the industrial situation, which also is only slight. The falling birth rate is also reflected in a volume on housing, just published, relating to the census of 1931. A table showing the average size of families gives for 1931, 3.72; for 1921, 4.14; for 1911, 4.36. The two-person family now amounts to 21.9 per cent of the total families and the three-person to 24.1 per cent.

National Council for the Disposal of the Dead

The National Council for the Disposition of the Dead, which has been in the course of formation since 1933, has been formally constituted. Lord Horder, who presided, explained that the word "disposition" had been used because it was the officially recognized term. Hygienic disposal of the dead had long been considered one of the fundamentals of public health. Yet though official activity had been extended to drainage, water supply, ventilation, sewerage, purity of food and other problems affecting the health of the community, the important matter of the disposal of the dead was left entirely to private enterprise. To remedy this defect a committee representing cremation authorities, undertakers and cemetery superintendents set to work and in 1933 defined their objects as follows: (1) revision and codification of the laws governing the disposal of the dead; (2) preservation of land in the interests of the living; (3) improvement of the status of those concerned with the disposal of the dead; (4) safeguarding of public interests in all matters affecting the disposal. The law today had no relation to the circumstances of our times, and there was pressing need for its revision and codification. The committee had decided that the most important immediate task was to obtain public recognition of the undertaker for the national duty he performed. This could be done through the registration of qualified undertakers, who would observe a high standard of service. Registration would establish a barrier against crime and insure a further means for detecting it. Resolutions were carried formally constituting the council, with a legal and parliamentary committee.

Road Accidents

In 1934 there were 7,273 persons killed and 231,698 injured in road accidents in Great Britain in which horses or vehicles were concerned. This is an increase on the figures for 1933, which were 7,202 and 216,238 respectively. The number of recorded accidents involving personal injury was 204,800, of which 7,088 were fatal. The corresponding figures for 1933

were 191,782 and 7,001. There was thus an increase of 6.8 per cent in the total number of accidents (as compared with an increase of 4.2 per cent last year) and an increase of 1.2 per cent in the number of fatal accidents (as compared with an increase of 7.9 per cent last year).

The figures for London show an increase in the number of persons injured and a decrease in the number of persons killed, the totals for 1934 being 59,029 and 1,418 respectively, while the figures for 1933 were 56,912 and 1,441.

PARIS

(From Our Regular Correspondent)

Jan. 14, 1935.

Warning Against American "Interviews"

The medical profession in France has noticed that certain American lay periodicals carry advertisements in which some physicians, chiefly those connected with large Paris hospitals, endorse the particular product advertised and even allow their photographs to be published. As a result of the growth of this method of exploitation of the medical profession, not only of France but also of Germany and Austria, an effort is being made in France to end this unethical practice. The following article appears in the *Presse médicale*, January 12, signed by one of its editors, Dr. P. Desfosses:

"The sale of certain pharmaceutical specialties to the general public through the medium of advertisements in the daily press has assumed considerable importance from the financial point of view for the past thirty-five years. Those who advertise their products advise the public to use the particular preparation without consulting a physician. Nevertheless, whenever a report is made by some member of the medical profession before a society, advantage is taken of such communications to incorporate them in the advertising inserted in journals read by the laity. Some of these papers read at medical society meetings cannot be used for advertising purposes, so a new method has been devised, which consists in sending a suave representative to 'interview' the various professors in the larger medical centers of Europe on some question of medical practice and then to utilize these conversations in altered form as recommendations of the particular drug or food product which the interviewer represents. The 'interview' is then published, and the various titles held by the professor who has been interviewed and even his photograph added to show the genuineness of the endorsement. The photographs of all leading medical men on the continent of Europe are on sale at the medical bookstores, so that it is unnecessary to ask for a photograph for insertion in the advertisement.

"The minister of foreign affairs of France has recently sent to the society that has charge of foreign medical relations a large number of clippings of such advertisements from American periodicals, which no doubt have made a bad impression on the medical profession of the United States and Canada as to the ethical standing of those who have allowed themselves to be 'interviewed' by representatives of American food products, and others. The fear is expressed that those who see this publicity do not realize that the photographs and accompanying endorsements have been published without the consent or knowledge of the respective medical men. Hence the minister of foreign affairs warns the profession in France against these suave interviewers, who by flattery and under the cloak of a desire to benefit humanity seek to secure endorsements, which are altered so as to make good publicity. Such a practice is considered very unethical by the French medical profession."

Resistance to Insulin

In the January *Gazette médicale de France*, the question of resistance to insulin is discussed by Labbé and Boulin, who have a service that specializes in the treatment of diabetes at a public hospital of Paris. The cases that are considered resistant to insulin are not nearly so common as one would think. Most of the reported cases of this kind are the result of the faulty use of insulin. The patient is frequently to blame, because the diet is not followed as it should be. On the other hand, the physician is to blame often because a diet that contains too much carbohydrate is ordered. In some cases the doses of insulin are not high enough or the injections are given at too frequent intervals. Again, insulin is prescribed in cases of nondiabetic glycosuria, in which its use is contraindicated. Excluding all these cases, is there such a condition as insulin resistance? In order to establish "insulin resistance," two conditions must be complied with:

First, that the insulin has no effect on the blood sugar. This is the essential feature indicating insulin resistance.

Second, if the diet is an unvarying factor and the blood sugar and acetonuria also are constant, the administration of insulin should not determine any decrease in either the glycosuria or the acetonuria.

There are few cases in which both of these conditions of insulin resistance are found; hence one can consider insulin resistance very rare. Labbé and Boulin have observed only one case in which insulin had no influence on the blood sugar, glycosuria and acetonuria. They concede that one may encounter cases in which there is a partial insulin resistance, in which the hypoglycemia insulin test reduces the blood sugar by only 49 per cent as an average instead of the maximum of 81 per cent, and, secondly, that the quantity of carbohydrates that a unit of insulin will metabolize is much less than a gram instead of the normal 1.5 Gm. It is well known that larger doses of insulin are needed in cases of diabetes complicated by infection than when the latter does not exist. A certain degree of insulin resistance is observed also in cases of diabetes associated with hypophyseal growths, in exophthalmic goiter or in cirrhosis of the liver. Aside from these instances of partial insulin resistance, too much importance ought not to be attributed to the frequency of the condition. Aside from cases of diabetes complicated by infection, insulin resistance for all practical purposes occurs but rarely.

Paroxysmal Hypertension

Two recent meetings of the society composed of chiefs of medical services of the large Parisian public hospitals (Société médicale des hôpitaux de Paris) were devoted to papers on this relatively new clinical entity.

Donzelet divided paroxysmal hypertensions into three clinical groups: 1. Cases in which it appears in individuals suffering from permanent hypertension. 2. Those in which there is a well defined clinical syndrome. 3. Those found in certain patients with adrenal tumors. In the first of these the attacks of paroxysmal rise of blood pressure above the average found in the particular case of hypertension may pass unnoticed unless the blood pressure happens to be observed during such an exacerbation. In other cases, one observes definite evidence in the form of polyuria, cramps in the calves of the legs, angina-like pains, severe headache, and a syndrome called "cerebral eclipse," in the form of amnesia, transitory amaurosis or aphasia, word blindness, deafness or paralysis. These "eclipses" are interpreted as due to an arterial spasm.

A paroxysmal hypertension can frequently provoke serious accidents in cases of hypertension, in the form of cerebral hemorrhage or acute left ventricle insufficiency. Such paroxysmal exacerbations are hence a constant menace in hypertension cases. In the second group one finds paroxysms of hypertension associated with lead poisoning, eclampsia, irritations of the peripheral sensory nerves, and so on. The familiar lead colic occurs during such a paroxysmal rise of blood pressure and ceases when the latter falls. The same is true of some of the cerebral symptoms observed in cases of lead poisoning. Convulsions in eclampsia synchronize with transitory rises of blood pressure. During the last twelve years the attention of clinicians has been called to the fact that tumors involving the

chromaffin cells of the adrenals are accompanied by crises of hypertension, which may be very severe. Donzelet describes such a case in which the attacks occurred daily. This paroxysmal hypertension is accompanied by albuminuria and a rise in blood urea and at times by a hyperglycemia with or without concomitant glycosuria. There is also an increase in the number of red and white corpuscles in the blood. If the adrenal tumor is not removed, the hypertensive attacks increase in frequency, there is accentuation of the disturbances of elimination, and death occurs as the result of a vascular rupture or acute pulmonary edema. One should always suspect a neoplasm of chromaffin origin whenever such paroxysmal hypertension crises occur. The only available treatment in the first two groups is to attempt to lessen the severity of the attacks by the administration of barbiturates, opiates, organic nitrites and bleeding.

Benard and Merklen discussed the relation between the carotid sinus and changes in blood pressure. In 1923 Hering called attention to a slight swelling at the point of origin of the internal carotids, which plays an important part in the regulation of arterial tension. His observations have been confirmed by others, including Benard and Merklen. Stimulation of this carotid sinus is followed by a fall in blood pressure, and suppression of its physiologic action is followed by hypertension and tachycardia. The "nerves of Hering," as they are termed, which arise from this center, are veritable "brakes" on arterial tension. There exists a "permanent sinocarotidian depressor tonus," which assures the regulation of blood pressure by acting as a "brake" against the constant tendency on the part of the organism toward hypertension. It is tempting to ascribe clinically pathologic changes in arterial tension to functional disturbances of this carotid sinus and sensitive cardio-aortic zone, which latter heretofore has been considered to play the chief part in alterations of blood pressure. Clinically, one encounters many objections to the theory that the carotid sinus regulates blood pressure; hence the possibility of treating cases of permanent hypertension by operations on such a center does not offer as good prospects as that of drugs that will influence this carotid sinus center.

Mouquin stated that paroxysmal hypertension is due to a sudden disturbance of the regulatory mechanism of arterial tension. For practical purposes, one could place the cases of paroxysmal hypertension under three etiologic headings: First, those of central origin in which, as a result of an acidosis or of an anoxemia or a brain tumor, there is a stimulation of the hypertensive tonus of the vasopressor centers. Second, those of cranial nerve origin. Of recent years, two cranial nerves have been considered as responsible, the fifth in cases of zona and the tenth in a cancer of the esophagus involving also the larynx and also in a case of lymphosarcoma of the mediastinum. Third, those of adrenal tumor origin. These clinical observations are the most common and the most characteristic. These tumors seem to act by an excessive, either gradual or sudden, discharge of epinephrine secretion into the blood stream, which causes a dysfunction of the regulatory mechanism for arterial tension, thus resulting in an intense vasoconstriction and subsequent rise in blood pressure. Such a hypersecretion of epinephrine has never been demonstrated. Stimulation of the splanchnic nerves has also been held responsible for the hypertension in these adrenal tumor cases. Further observations are needed as to the part played respectively by the adrenal and the splanchnic. Perhaps one will find cases of tumors of paraganglionic structures, which, with the adrenals, form the chromaffin system. One should always keep in mind clinically the distinction between cases of permanent and those of paroxysmal hypertension.

Marcel Labbé had previously reported two cases of paroxysmal hypertension occurring in association with adrenal tumors. He corroborated the hyperadrenalinemia theory of the previous speaker and said that methods for determining the amount of epinephrine in the blood are still imperfect. One does not always find renal lesions in cases of paroxysmal hypertension, and, when they occur, they do not resemble those of a typical nephritis.

De Gennes, who did not agree with this view, thinks that there is a disturbance of renal function during every attack of paroxysmal hypertension and that they persist for some time afterward. In certain cases the paroxysmal hypertension is followed by a true chronic nephritis. On the other hand, one sees cases of even advanced permanent hypertension without disturbances in renal function.

Laubry agreed with Donzelot and de Gennes as to the absence of any constant relation between hypertension and nephritis. A paroxysmal hypertension, if the attacks occur frequently enough, may undergo transition into a permanent hypertension. In such cases the renal lesions as found at necropsy are either absent or only slight.

Society for Anesthesia Formed

Although there are almost innumerable societies, no special one in France for the study of anesthesia had been formed until recently, when such a society was organized with Professor Forgue as honorary president and Professor Gosset as president. The society will hold four meetings a year in Paris and an extra session in the fall during the French Surgical Congress. A special journal devoted to anesthesia will be published.

Prof. Caesar Roux of Lausanne

Although not a French surgeon, Professor Roux, who died at Lausanne at the age of 77 years, was so active in the surgical congress held annually here that he was regarded as an international figure. The city in which his clinic was situated, although not a portion of France, is in that portion of Switzerland where only French is spoken. His clientèle included patients from all countries, especially France and the United States. His skill as an operator and his equal treatment of the rich and the poor have commanded the admiration of all.

BERLIN

(From Our Regular Correspondent)

Dec. 24, 1934.

The German Dermatologic Society

After the omission of several annual sessions, the Deutsche Dermatologische Gesellschaft met recently in Berlin, under the chairmanship of Professor Zieler of Würzburg. The first paper was presented by Professor Bering of Cologne on "Scientific Bases for the Diagnosis of Industrial Diseases of the Skin and for the Estimation of the Degree of Disability." In the official list of occupational diseases of 1929 are found all the occupational dermatoses entitling the patient to compensation. Eczemas are the most common manifestation. Occupational eczema is an allergic disease. In inquiring into the right to compensation, if the presence of an occupational eczema is recognized, an existing idiosyncrasy must not be overestimated. The stronger the sensitizing power of a substance is, the more likely the appearance of an occupational eczema. The longer a single hypersensitiveness is fanned, the more likely general sensitiveness will result. Careful skin tests are needed. A positive test proves sensitization but a negative test does not justify rejection of an occupational eczema. The substances used by the patient in his occupation must, if necessary, be examined and tested. The diagnosis "chronic eczema" is justified after a duration of eight weeks, and the diagnosis "chronic recurrent eczema" after an occupational eczema has appeared three times. A reduction of the number of cases of

occupational eczema may, in the opinion of Bering, be attained by excluding all persons with idiosyncrasies (allergic and seborrheic persons) from occupations in which strongly sensitizing substances are used.

Professor Curschmann brought out in a paper that the precise estimation of the degree of disability is hampered by the diagnostic difficulties. Cutaneous disease may be the sole expression of an occupational injury or only the symptom of a systemic disease as a result of occupational injury. Occupational acne is promoted by disturbances of metabolism, an undermined general condition, and sensitive skin. In Curschmann's opinion, however, the paroxysmal appearance of an occupational acne is the expression of an already acquired sensitiveness. Among workmen one often observes eczemas that are not occupational eczemas. Compulsory declaration of all substances used in a given industry should be demanded, together with a complete statement as to the possibility of injuries and the necessary preventive measures; furthermore, hygienic measures should be taken, proper skin and wound treatment, and, if need be, protection of the skin with zinc ointments. General skin tests before workmen are employed cannot as yet be demanded. The number of occupational skin diseases is small and has been decreasing in recent years.

The interpretation of psoriasis as a primary lipoidosis, as set forth by Grütz, has not found as yet any uniform recognition. In psoriasis, according to Grüneberg of Halle, a subordinate function of the adrenal cortex has causal importance. By the application of suitable therapy, manifestations of psoriasis were eliminated in a striking manner; the vitamin C content of the remedy is said to have played no part.

Lomholt of Copenhagen reported his results with chaulmoogra oil in other than leprous disorders; for example, lupus erythematosus and mycosis fungoides. In lupus vulgaris the results were nil.

Gold therapy in syphilis, according to Heuck and Vonkennel of Munich, has given good serologic results; it may gain importance also in resistance to therapy, in seroreaction remaining stubbornly positive, and as a substitute for fever therapy. An oily preparation was employed. But more observations must be reported before any definitive statements can be made.

In the treatment of lupus, Stühmer regards the present method as adequate. According to Lomholt, Denmark has made greater progress in this field than Germany, owing to more intensive study of lupus patients. Hospital treatment is commonly employed from the start (Finsen light locally, general light exposure and administration of vitamin preparations).

The Examination of Aviators

In the Eppendorf Hospital in Hamburg there was established, years ago, an institute to deal with the medical problems of aviation (Institut für Luftfahrtmedizin). Since practical aviation makes special demands on medical research and cooperation, the testing of the aptitude of aviation candidates was organized in this institute in a systematic manner. Night flying and flying through fog, altitude flights, diving and stunt flying are limited by the capacity of the human body to endure hardships. These problems the aviation physician must study in detail. While physical fitness is indispensable to the aviator, the most important matter in his success is such qualities as mental alertness and firmness of character. A candidate's aptitude, as Dr. Lottig brought out in addressing the Hamburg Medical Society, must not be based, as was formerly done, on mechanical and psychotechnical experiments but must take into account the candidate's personal qualities as learned from most intimate association with him under varying circumstances. The effects of great altitudes on the mental behavior of a person must not be overlooked. Excitation and mild disorganization accompanied by a certain lack of judgment and resoluteness may, under some circumstances, be a serious danger for the aviator. These conditions can be studied, in testing the aptitude of aviation candidates, in the subpressure chamber.

Continuation Courses for Physicians

A new kind of continuation courses for physicians will be organized, the coming spring, in the Rudolf Virchow Hospital in Berlin. The courses will provide whole-day instruction at the bedside and in the laboratory, so that practitioners will have the opportunity to renew their experiences with hospital routine. They will participate also in the seminar drills that the head physicians will hold on the principles of diagnosis and therapy. It is also planned to give certain lectures on subjects selected by the visiting physicians. The physicians taking the continuation courses may choose an institution where they will work, or they may divide their activities among several institutions. The participants can secure room and board in hospitals for 2.50 marks ($1) a day. Like all municipal continuation courses for physicians given in Berlin, these courses will be open only to physicians of Aryan race.

The Number of Miscarriages

Since 1924, the city of Lübeck has collected systematic statistics in regard to miscarriages on the basis of confidential report cards filled out by physicians, midwives, hospitals and the office of the Ortskrankenkasse. These interesting figures are not entirely complete, but they are fairly comprehensive. According to these statistics, the number of miscarriages in 1932 was 1,036, or almost two thirds of the notifiable living births and stillbirths combined. The proportion of miscarriages in relation to the number of announced pregnancies (that is, the notifiable pregnancies and the miscarriages taken together) was in 1924, in which year the absolute number of miscarriages was 434, 16.8 per cent. In 1927, owing doubtless to a more complete registration, the proportion increased to 33.6 per cent, the absolute number being 947. Then, during the more favorable economic conditions that followed, it receded a little (30.9 per cent in 1929) and later, during the economic crisis, rose again to 33.7 per cent in 1931 and to 39.4 per cent in 1932. The proportion was 35.6 per cent for married persons in 1932 and 56 per cent for unmarried persons. Classification of the miscarriages (so far as possible) revealed that in 1932, among married persons, 53.8 per cent of all miscarriages were reported as the first, 26.9 per cent as the second, 9.9 per cent as the third, and 4.6 per cent as the fourth miscarriage. Among unmarried persons the first miscarriages predominated, with a proportion of 84.2 per cent; the second miscarriages were represented by 12.5 per cent.

NETHERLANDS

(From Our Regular Correspondent)

Jan. 14, 1935.

New Convalescent Centers

Under the name "Parkherstellingsoorden" Dr. Hartogh of Amsterdam has founded a society to provide suitable centers for convalescents. He observed that many patients, on being discharged from hospitals, supposedly cured, were still in a physical condition that precluded their resuming their occupation, and it was for this class chiefly that the new centers were founded. Many patients without resources are allowed the privileges of the centers free of charge. The city of Amsterdam has placed at the disposal of the society large parcels of ground, on which temporary shelters have been erected, where convalescents may spend the day, from 9 a. m. to 5 p. m. New guests are examined, on first entering, by a physician without charge. Infectious and tuberculous patients are not admitted. Patients spend their time reading, resting in comfortable chairs or doing bits of handiwork. The work

of the society has been taken up by other cities and similar centers have been created.

Because of the low prices charged and frequent remission of all charges, these societies often get into debt, in which event the Red Cross, the city of Amsterdam and many private donors come to the rescue.

Traffic Accidents

Table 1 gives a survey of the traffic accidents causing deaths in the Netherlands in 1931.

With 491 deaths, automobile accidents occupy first place. It is easy to understand why the greatest number of deaths occur among children under 10 years of age, and why boys are in the majority.

Accidents are not more frequent, in proportion to the population, in the large centers than in the small towns. The mortality rate in cities of more than 100,000 population was 5.9 per hundred thousand inhabitants; in cities of from 20,000 to 50,000, 7.6 per hundred thousand, and in cities of 5,000 or less, 6.2.

As the best prophylactic measure, closer supervision of children is recommended; also previous examination of drivers, although it is admitted that experienced drivers, as well as beginners, are involved. A psychiatric examination of professional drivers has been proposed. The length of the working

TABLE 1.—*Fatal Traffic Accidents in the Netherlands*

Age of Victim		Train	Tramway	Autocars	Other Vehicles	Totals
1- 4 yrs.	Male	3	4	32	9	48
	Female	..	3	17	3	23
5- 9 yrs.	Male	2	3	56	9	70
	Female	..	1	21	3	25
10-14 yrs.	Male	2	1	27	5	35
	Female	..	2	8	2	12
15-19 yrs.	Male	7	4	25	2	38
	Female	1	1	6	..	8
20-24 yrs.	Male	5	6	45	5	61
	Female	..	3	6	..	9
25-29 yrs.	Male	5	1	26	3	35
	Female	1	1	2	..	4
30-34 yrs.	Male	7	2	27	3	39
	Female	..	2	6	..	8
35-39 yrs.	Male	6	5	16	..	27
	Female	..	2	3	..	5
40-44 yrs.	Male	6	2	23	1	32
	Female	..	..	3	2	5
45-49 yrs.	Male	7	1	23	7	38
	Female	1	1	3	..	5
50-54 yrs.	Male	7	4	17	4	32
	Female	2	..	2	1	5
55-59 yrs.	Male	6	3	16	2	27
	Female	..	..	2	..	2
60-64 yrs.	Male	1	3	23	1	28
	Female	..	1	1	..	2
65-79 yrs.	Male	3	7	37	6	53
	Female	1	2	6	3	12
80 and above	Male	1	2	9	2	14
	Female	..	1	3	..	4
Totals		74	68	491	73	706

day and condition of the vehicles are to be considered. Proper police control and adequate lighting of streets also enter into the problem.

The Crusade Against Trachoma

Trachoma may be regarded as endemic in the Netherlands. It appears, however, that, owing to an effective campaign carried on in recent years, this disease is about to disappear—as far as Amsterdam is concerned, at least. In 1870, 45 per cent of the Jewish school children were trachomatous. Aroused by the frequency of this disease, the ophthalmologists launched a campaign of hygienic education. In 1913 there were still about 3,000 children affected. The authorities then appointed a commission to organize a systematic crusade against the disease.

In the report presented for the period 1914-1917 there were 8.8 per cent of the Jewish school children affected, as against only 0.6 per cent of the non-Jewish children. The commission found that it is not the school that plays the principal part in propagating the disease, but the family environment. The commission proposed to the municipal authorities the following means of defense: (1) the installation of a policlinic in the Jewish quarter, where the patients could go for treatment; (2) appointment of an ophthalmologist for the regular supervision of the schools; (3) regular treatment by the school physician of all trachomatous children attending the schools. Those not submitting to this treatment were to be excluded from courses of instruction.

TABLE 2.—*Incidence of Trachomatous Disease in the Elementary Public Schools*

Year	Jews, per Cent	Non-Jews, per Cent
1914	58.2	5.2
1918	52.1	5.1
1923	39.1	1.8
1927	14.4	0.9
1928	10.1	1.0

TABLE 3.—*Total Number of Trachomatous Patients in the Jewish Schools, with 2,000 Pupils*

Year	No. of Patients	New Cases
1918	176	57
1920	179	36
1921	177	23
1927	59	6
1928	44	2

As a result of these measures, all the children were brought under treatment and most of them were cured. The duration of the treatment ranges from one to four years, depending on whether the children come regularly for treatment, and also on the degree of cleanliness in the home surroundings.

Tables 2 and 3 reveal in a graphic manner the retrogression of trachoma among the children in the public schools.

These figures justify the hope that, ten years from now, trachoma will have entirely disappeared from Amsterdam. It would be dangerous, however, to abandon treatment at this juncture.

VIENNA

(From Our Regular Correspondent)

Jan. 2, 1935.

Is Cancer on the Increase?

Contrary to the assumption that malignant disorders have undergone a marked increase in recent decades, Dr. Bashford of the Imperial Cancer Research Fund expressed the conviction, twenty-five years ago, that this view is incorrect, and since then other statisticians have supported his assertion. The Vienna investigator Dr. Peller, who has made an extensive study of the question, declares that the apparent increase is due to the marked increase in the average age of the population. Owing to the reduction in the birth rate, a considerable modification of the representation of the respective age groups of the population has occurred. In 1900 there were thirty-six births a year per thousand of population, but in 1930 only 17½. The progress of hygiene, which has markedly reduced the incidence of smallpox, typhoid and cholera and likewise diminished the mortality of tuberculosis and children's diseases, has brought about an increase in the representation of the older age groups. The average life expectancy has increased, during this period, by not less than fifteen years. In 1900 there were 125 persons more than 50 years old per thousand of population; by 1930 the number had increased to 205. Thus many more persons belong to the age groups menaced by cancer than thirty years ago. The statistics must therefore be so elaborated that only like age groups are compared; that is, a principle of equalization must be applied. If that is done the remarkable

fact is developed that cancer mortality in the middle age groups has not increased but, on the contrary, shows a distinct retrogression. That is shown clearly in the table that Dr. Peller has prepared for Vienna. The table shows the number of deaths from cancer per 10,000 of population in the various groups.

Periods	20-30	30-40	40-50	50-60	60-70	70 and above
1901-1905.....	0.89	3.6	15.45	43.45	90.62	122.0
1906-1914.....	0.93	3.2	13.90	41.60	88.8	116.9
1919-1923.....	0.97	2.9	11.35	39.9	85.6	124.7
1928-1929.....	1.06	3.0	11.25	40.90	104.1	159.8

It will be seen that the mortality has increased only in the 20-30 age group and in the age groups beyond 60. The first group, however, has little significance, since cancer in these years is rare. The retrogression in the case of women is more significant. Only from the sixtieth year in men and from the sixty-fifth year in women is an increase to be noted in the standardized table, but improvements in diagnosis make the increase appear greater than it really is. The actual retrogression of cancer mortality in the middle age groups is greater than the statistics reveal. Similar results have been reached for Switzerland, America and Germany, as Dr. Fritz Greger shows in the work cited. These investigations establish the fact that cancer mortality is not increasing. It is true that there appears to be a shifting in the localization of cancer, in that the cancer cases more accessible to treatment have become more frequent (skin; tongue). It is also certain that cancer is diagnosed more frequently in well-to-do circles than formerly; but this is due to the fact that in these circles medical care has improved. With the increase of early diagnosis the prospects of a cure are increased. Dr. Greger emphasizes however that, just as infectious diseases present wavelike fluctuations, neoplasms appear to show periods of increase and decrease in cycles of from sixty to eighty years. As for the special conditions obtaining in Austria, it must be borne in mind that 30 per cent of the population of the republic is massed in the city of Vienna, where the diagnosis of cancer is much easier than in the rural sections. Hence it is evident that in Vienna the number of cancer cases diagnosed will show a higher per capita basis than Austria as a whole. Vienna has almost 34 per cent of all the cancer cases but only 30 per cent of the population of the republic. In cancer, about 75 per cent of the deaths occur after the fiftieth year of life, while in tuberculosis they occur before that age; but numerically the number of deaths from tuberculosis is less than the number due to cancer. With a better understanding by the public, the early recognition and cure of malignant disease will be advanced, so that the diagnostic and therapeutic successes (surgery and ray treatment) will have a favorable effect on the mortality.

Pay Patients in the Ambulatoriums

The complaints against the ambulatoriums have to do primarily with the many patients in them who are able to pay ordinary fees. The fees thus lost during the year by the practicing physicians represent large sums, the loss being felt especially by the specialists. The League of Vienna Specialists has therefore sent a request to the directors of the Vienna hospitals that they cease to accept such patients but refer them to the private specialists, on the ground that it is not the purpose of the ambulatoriums to render gratuitous medical aid to pay patients. Petitions were addressed also to the physicians in the provinces, urging them not to send to the ambulatoriums patients they wish to be subjected to a careful examination but to refer them to private specialists. Suggestions made by the league for the remedying of the conditions provoking complaints were to the effect that every patient who visits the ambulatoriums be subjected to careful control before being admitted to examination or treatment. Only patients without funds and those who can present a recommendation from their panel physician and a confirmation from their krankenkasse should be admitted.

Use of Sodium Citrate in Hemophilia

At a recent session of the Vienna Medical Society, Dr. Schürer reported the good results that he had seen in grave hemorrhages following extractions of teeth from the use of a combination of blood transfusion with subcutaneous injection of a 3.5 per cent solution of sodium citrate. Also in other cases of grave hemorrhages from the kidney, following traumas, this medication offers in hemophilia the best prospects for a prompt control of the bleeding. The effect is brought about by a reduction of the usually lengthened coagulation period. The normal coagulation period is from four to eight minutes, but in the cases observed by Schürer he observed before the injection twenty-one, after the injection sixteen, and on the day of the transfusion thirteen minutes. A blood transfusion should be combined with the sodium citrate. The speaker introduced a man, aged 34, who was known as a hemophiliac subject and in whom, following a tooth extraction, a grave submucous bleeding in the mouth and a hematoma of the face developed. In spite of all various preparations applied, the hematoma assumed huge proportions and dyspnea appeared. After a venesection of 800 cc., a transfusion of 600 cc. was given and the sodium citrate was injected daily. The effect was excellent. From 10 to 20 cc. should be injected once a day—with children one may begin with 5 cc.—but always combined with a blood transfusion. Blood transfusion appears to be the sovereign remedy in hemophilia, but its effects are greatly enhanced by a preceding injection of sodium citrate.

Prof. Hans Lorenz

A few days ago Prof. Dr. Hans Lorenz of the Spital der Kaufmannschaft (not to be confused with the orthopedist Prof. Dr. Albert Lorenz or his son Adolf) brought his life to a close by his own hand at the age of 59 years. Financial difficulties appear to have been the chief cause. A short time before his death he performed a difficult operation with success. Professor Lorenz was noted for his skill and rapidity in operating, which were especially valuable in connection with abdominal interventions, his chief field of activity. He did not publish many articles, but before the medical societies he demonstrated many interesting cases. As a young physician he became "assistent" in the Chirurgische Klinik in Vienna, where his brilliant work in the surgical field soon attracted attention. In Hochenegg's Handbuch der Chirurgie he prepared the chapters on abdominal operations.

Marriages

MARVIN L. LATIMER, New Haven, Conn., to Miss Mildred Stansill of New York, in Norfolk, Va., Dec. 21, 1934.

BADIE T. CLARK, Rocky Mount, N. C., to Miss Margaret Page Smith of Atlanta, Ga., January 19.

FREDERICK B. HAAR, Greenville, N. C., to Miss Nell Venable Hubbard of Wilmington, January 16.

DUNCAN ROLAND MCEACHERN to Miss Eloise M. Shepherd, both of Richmond, Va., January 23.

ROBERT H. WISEHEART, North Salem, Ind., to Miss Betty Ramey of Indianapolis, January 5.

DONALD BROCK KOONCE to Miss Louise Bellamy Wood, both of Wilmington, N. C., January 19.

JOHN M. BREWER to Miss Jean Reynolds Culvera, both of Kershaw, S. C., January 12.

MARY ELIZABETH LEHMAN to Mr. Wallace Windus, both of Bristol, Pa., Nov. 24, 1934.

Deaths

Granville MacGowan ✠ Los Angeles; University of Pennsylvania Department of Medicine, Philadelphia, 1879; Member of the House of Delegates of the American Medical Association, 1909-1911, and chairman of the Section on Genito-Urinary Diseases, 1914-1915; emeritus professor of surgery, University of Southern California School of Medicine; professor emeritus of urology, College of Medical Evangelists; member and in 1912-1913 president of the American Urological Association; fellow of the American College of Surgeons; past president of the California Medical Association and the Los Angeles County Medical Association; one of the organizers and formerly member of the health department of Los Angeles and for four years health commissioner; one of the founders and for many years chief of staff of the California Hospital; aged 77; died, January 31, of arteriosclerosis and chronic myocarditis.

Thomas James O'Brien ✠ Boston; Harvard University Medical School, Boston, 1899; also a pharmacist; taught analytic and organic chemistry at the Massachusetts College of Pharmacy, 1901-1905, a trustee, 1907-1912, and dean, 1911-1912; since 1920 professor of clinical medicine, Tufts College Medical School; in 1914 assistant visiting physician at the Boston City Hospital, from 1919 to 1931 secretary of the medical staff, from 1932 to 1934 member of the senior staff and later appointed consulting physician; consulting physician at St. Elizabeth's Hospital, Boston, Marlboro (Mass.) Hospital and the Leonard Morse Hospital, Natick; aged 62; died, February 5.

Alonzo Marston Garcelon, Lewiston, Maine; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1876; was a Trustee of the American Medical Association, 1883-1901, and in 1901 was elected Vice President formerly state senator and member of the state legislature; at one time mayor of Lewiston and member of the board of education; on the staff of St. Mary's General Hospital; aged 83; died, January 14, of acute dilatation of the heart and hepatitis.

Daniel Hunt Fuller ✠ Philadelphia; Harvard University Medical School, Boston, 1891; member of the American Psychiatric Association and the New England Society of Psychiatry; associate in psychiatry, University of Pennsylvania Graduate School of Medicine; on the staffs of the Pennsylvania Hospital and the Pennsylvania Hospital Department for Mental Diseases; aged 70; died, February 1, of carcinoma of the pancreas.

Norman Charles Goodwin, Richmond Hill, N. Y.; Albany (N. Y.) Medical College, 1907; member of the Medical Society of the State of New York; on the staffs of the Jamaica Hospital, Richmond Hill, the Mary Immaculate Hospital and the Queensboro Hospital for Communicable Diseases, Jamaica; aged 53; died, January 19, of infectious arthritis and cerebral arteriosclerosis.

Lewis E. Maire, Grosse Pointe, Mich.; Detroit Medical College, 1881; member of the Michigan State Medical Society and the American Academy of Ophthalmology and Oto-Laryngology; past president of the Wayne County Medical Society; formerly member of the board of education and board of health; aged 79; died, January 9, of carcinoma of the prostate.

Ernest Marsh Poate ✠ Southern Pines, N. C.; Cornell University Medical College, New York, 1906; also a lawyer; member of the American Psychiatric Association; formerly professor of psychiatry, Duke University School of Medicine, Durham; served during the World War; aged 50; died, February 1, of pneumonia and pulmonary tuberculosis.

Sidney Walker, Dublin, Ga.; Hospital College of Medicine, Louisville, Ky., 1904; member of the Medical Association of Georgia; past president of the Laurens County Medical Society; served during the World War; formerly on the staff of the Claxton Sanitarium; aged 55; died, January 22, at Piedmont Hospital, Atlanta, of atrophic cirrhosis of the liver.

Harry Samuel Wagner ✠ Pocasset, Mass.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1903; fellow of the American College of Physicians; superintendent of the Barnstable County Sanatorium; aged 57; died, February 8, in the Baker Memorial Hospital, Boston, of carcinoma of the urinary bladder.

William J. Herman ✠ Boston; Harvard University Medical School, Boston, 1920; member of the American Neurological Association and the American Psychoanalytic Association; instructor in psychiatry at his alma mater; on the staff of the Massachusetts General Hospital; aged 43; died, January 26, of coronary arteriosclerosis.

William R. Stringham ✠ Cheboygan, Mich.; Michigan College of Medicine, Detroit, 1884; also a pharmacist; past president of the Cheboygan County Medical Society; on the staff of the Petoskey (Mich.) Hospital; aged 77; died, January 31, in the Lockwood Hospital, Petoskey, of carcinoma of the sigmoid.

William Edwin Fellows, Bangor, Maine; Hahnemann Medical College of Philadelphia, 1876; member of the Maine Medical Association; past president of the Penobscot County Medical Society; on the consulting staff of the Eastern Maine General Hospital; aged 83; died, January 18, of arteriosclerosis.

John Willingham Du Pree, Greenville, S. C.; Medical College of the State of South Carolina, Charleston, 1913; member of the South Carolina Medical Association; aged 47; died, January 19, in the Greenville City Hospital, of coronary thrombosis and essential hypertension.

Dowdell M. Jordan, Oglesby, Texas; Tulane University of Louisiana Medical Department, New Orleans, 1893; member of the State Medical Association of Texas; past president of the Coryell County Medical Society; aged 77; died, January 2, of lobar pneumonia.

Nathan R. Phillips, Piper, Ala; University of the South Medical Department, Sewanee, 1901; member of the Medical Association of the State of Alabama; past president of the Bibb County Medical Society; aged 57; died, Dec. 19, 1934, of cerebral hemorrhage.

Herbert Theodore Wagner ✠ Indianapolis; Indiana University School of Medicine, Indianapolis, 1908; served during the World War; aged 48; on the staff of the Methodist Episcopal Hospital, where he died, January 30, of cerebral hemorrhage.

Florence Vincent Guinee, New York; Fordham University School of Medicine, New York, 1921; member of the Medical Society of the State of New York; on the staff of the Lenox Hill Hospital; aged 38; died, February 5, of nephritis and heart disease.

Joseph Taney McGinity ✠ Springfield, Mass.; University of Vermont College of Medicine, Burlington, 1905; member of the Vermont State Medical Society; aged 54; on the staff of the Mercy Hospital, where he died, Dec. 24, 1934, of heart disease.

Samuel Polk Vineyard ✠ Amarillo, Texas; Medico-Chirurgical College of Kansas City, 1900; past president of the Potter County Medical Society; aged 58; on the staff of the Northwest Texas Hospital, where he died, Nov. 28, 1934.

Franklin George Warner, Peterboro, N. H.; Albany (N. Y.) Medical College, 1892; member of the New Hampshire Medical Society; on the staff of the Peterboro Hospital; aged 71; died, Dec. 25, 1934, of carcinoma of the pancreas.

Harold Johnson Weaver, Hamptonville, N. C.; Jefferson Medical College of Philadelphia, 1925; member of the Medical Society of the State of North Carolina, aged 37; died, January 14, in the Davis Hospital, Statesville, of pneumonia.

Joseph Claybaugh Smith, Grants Pass, Ore.; State University of Iowa College of Medicine, Iowa City, 1889; county health officer; formerly mayor, state senator and member of the state legislature; aged 75; died, Dec. 9, 1934.

James L. Turnbull, Vancouver, B. C., Canada; Victoria University Medical Department, Coburg, 1889; University of Toronto Faculty of Medicine, 1889; fellow of the American College of Surgeons; aged 72; died, Dec. 26, 1934.

Hjalmar Kylberg, Merced, Calif.; California Medical College, San Francisco, 1893; member of the California Medical Association; past president and secretary of the Merced County Medical Society; aged 69; died, Dec. 30, 1934.

Edwin Merriman Brown, Sheldon, Vt.; University of Vermont College of Medicine, Burlington, 1879; member of the Vermont State Medical Society; formerly state senator; aged 79; died, February 3, of arteriosclerosis.

Frank Marberry Acree, Dover, Tenn.; Kentucky School of Medicine, Louisville, 1889; aged 78; on the visiting staff of the Clarksville (Tenn.) Hospital, where he died, January 29, of senile gangrene with arteriosclerosis.

Charles Lucien Lavender, Columbia, Mo.; Missouri Medical College, St. Louis, 1885; member of the Missouri State Medical Association; formerly coroner of Warren County; aged 74; died, Dec. 3, 1934, of heart disease.

Walter Evan Lee, Clearwater, Fla.; Maryland Medical College, Baltimore, 1905; Hahnemann Medical College and Hospital of Philadelphia, 1906; aged 56; died, Nov. 23, 1934, of leukemia and secondary anemia.

William David Sloan, Stockton, Ga.; University of Georgia Medical Department, Augusta, 1910; served during the World War; aged 55; died, January 10, in a hospital at Atlanta, of chronic nephritis and heart disease.

John Gibson Davis Jr. ⊕ Christiansburg, Va.; Medical College of Virginia, Richmond, 1923; an associate surgeon to the New Altamont Hospital; aged 35; died, January 28, of influenza and gastric hemorrhage.

Vertner Kenerson, Eden, N. Y.; Yale University School of Medicine, New Haven, Conn., 1895; veteran of the Spanish-American War; aged 68; died, February 2, of arteriosclerosis, hemiplegia and diabetes mellitus.

David Edwin Sloan, Charleroi, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1893; on the staff of the Charleroi-Monessen Hospital, Lock No. 4; aged 70; died, January 8, of myocarditis and arteriosclerosis.

Frederick Lewis Singrey, Mount Vernon, Ohio; Starling Medical College, Columbus, 1898; member of the Ohio State Medical Association; formerly county coroner; aged 58; died, January 28, of heart disease.

Marius John Pace, Brooklyn; University and Bellevue Hospital Medical College, New York, 1933; aged 28; intern at the Newark (N. J.) City Hospital, where he died, Dec. 23, 1934, of carcinoma of the lung.

Douglas Wyatt, New Florence, Mo.; Kansas City Medical College, 1904; served during the World War; aged 57; died, January 11, in the Veterans' Administration Facility, Jefferson Barracks, of pneumonia.

George Almon Kelley ⊕ Canton, Ohio; Homeopathic Hospital College, Cleveland, 1880; on the staff of the Aultman Hospital; aged 77; died, January 31, of chronic myocarditis and cerebral hemorrhage.

Eugene J. Gregg, Cleveland; Meharry Medical College, Nashville, 1905; formerly member of the city council; aged 53; died, January 4, in the Lakeside Hospital, of empyema and lymphosarcoma.

John Louis Hennemuth, Modesto, Calif.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1890; member of the California Medical Association; aged 66; died, Dec. 9, 1934.

Edward Aloysius Tracy, Boston; Harvard University Medical School, Boston, 1891; member of the Massachusetts Medical Society; aged 70; died, January 12, of carcinoma of the liver.

R. Watson Graham, Los Angeles; McGill University Faculty of Medicine, Montreal, Que., Canada, 1904; fellow of the American College of Surgeons; aged 58; died, Dec. 30, 1934.

John Harding-Mason ⊕ San Francisco; California Medical College, San Francisco, 1900; aged 72; died, Dec. 13, 1934, in St. Francis Hospital, of arteriosclerosis and diabetes mellitus.

Edward Everett Pease, Nichols, N. Y.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1873; died, Dec. 21, 1934, of an intestinal malignant condition.

Victor Emmanuel Campbell, Fresno, Calif.; University of Colorado School of Medicine, Denver, 1930; member of the California Medical Association; aged 32; died, Nov. 28, 1934.

John Thorne Nicholson, Bath, N. C.; College of Physicians and Surgeons, Baltimore, 1885; aged 76; died, January 31, in the Riverview Hospital, Washington, of angina pectoris.

Zachary T. Gabbert, Casey Creek, Ky.; University of Louisville School of Medicine, 1881; aged 85; died, Dec. 22, 1934, of gangrene of the left foot and bronchopneumonia.

Arthur Clarkson Smith, Oakland, Calif.; Oakland College of Medicine and Surgery, 1907; member of the California Medical Association; aged 52; died, Nov. 25, 1934.

Esther Concordia Johnson, Moline, Ill.; University of Illinois College of Medicine, Chicago, 1931; also a medical missionary; aged 35; died, January 22, of malaria.

Eisuke Ishikawa, Stockton, Calif.; Tokyo Charity Hospital Medical College, Tokyo, Japan, 1907; member of the California Medical Association; aged 51; died, Nov. 28, 1934.

Bernard Conried Zall ⊕ Philadelphia; Medico-Chirurgical College of Philadelphia, 1909; aged 54; died, Dec. 22, 1934, in the Mount Sinai Hospital, of angina pectoris.

Wilbur LaVerne Sprong, Montreal, Que., Canada; Johns Hopkins University School of Medicine, Baltimore, 1930; aged 31; died, Nov. 23, 1934, in Los Angeles.

Trafford Brasee Salisbury, New York; Columbia University College of Physicians and Surgeons, New York; 1896; aged 60; died, January 12, of pneumonia.

William Tilden Smith, Norfolk, Va.; Medical College of Virginia, Richmond, 1904; member of the Medical Society of Virginia; aged 57; died, Dec. 28, 1934.

Leon Gilbert Verrill, Weeks Mills, Maine; Dartmouth Medical School, Hanover, N. H., 1896; aged 67; died, recently, of edema of the lungs and appendicitis.

Francis Fletcher Joyner, Roxbury, Mass.; University of Vermont College of Medicine, Burlington, 1900; aged 59; died, January 12, of bronchopneumonia.

James Michael O'Brien ⊕ Oregon, Wis.; Rush Medical College, Chicago, 1890; aged 71; died, January 20, in St. Mary's Hospital, Madison, of pneumonia.

Samuel Richard Arthur Jr. ⊕ Sacramento, Calif.; University of California Medical School, San Francisco, 1931; aged 29; died, Nov. 25, 1934.

William Forest Young, Statesville, Tenn.; University of Tennessee Medical Department, Nashville, 1889; aged 72; died, January 27, of pneumonia.

Edward Gustav Grahn, Indianapolis; Medical College of Indiana, Indianapolis, 1884; aged 85; died, recently, of arteriosclerosis and myocarditis.

David William Vaux ⊕ Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1905; aged 63; died, January 29, of cardiorenal disease.

Eugene Gaspard Courteau, St. Jacques, Que., Canada; School of Medicine and Surgery of Montreal, 1894; aged 66; died, Dec. 28, 1934.

John Alexander L. McAlpine, Vancouver, B. C., Canada; Marion-Sims College of Medicine, St. Louis, 1898; aged 67; died, Dec. 6, 1934.

Joseph Bedford Smart, Marble, N. C.; Chattanooga (Tenn.) Medical College, 1900; aged 63; died, Dec. 22, 1934, of bronchopneumonia.

Enrique M. Aldana, San Francisco; Universidad Nacional Facultad de Medicina, Mexico, D. F., 1899; aged 61; died, Nov. 28, 1934.

Howard Felix Adler ⊕ San Francisco; Harvard University Medical School, Boston, 1908; aged 50; died, January 24, of heart disease.

Carl Forsythe Payne, Franklin, Ind.; Jefferson Medical College of Philadelphia, 1888; aged 71; died, January 20, of heart disease.

Irwin S. Townsend, Detroit; American Eclectic Medical College, Cincinnati, 1879; aged 89; died, Dec. 27, 1934, of myocarditis.

Alfred S. Oliver, St. Marys, Ga.; Louisville (Ky.) Medical College, 1879; aged 77; died, Dec. 24, 1934, of hypostatic pneumonia.

William David Steen, New York; Columbus (Ohio) Medical College, 1883; aged 73; died, Nov. 20, 1934, of arteriosclerosis.

William Enville Richardson, Los Angeles; College of Physicians and Surgeons, Boston, 1910; aged 57; died, Dec. 19, 1934.

George Henry French, Long Beach, Calif.; Dartmouth Medical School, Hanover, N. H., 1886; aged 70; died, Nov. 28, 1934.

Lorenzo Stephenson Webb, Creswell, N. C.; University of North Carolina School of Medicine, 1905; aged 60; died recently.

Eugene Francis Shea, Howard, R. I.; Baltimore Medical College, 1894; aged 65; died, Dec. 31, 1934, of cerebral hemorrhage.

Amanda Maria Congdon, Los Angeles; University of Buffalo School of Medicine, 1892; aged 77; died, Dec. 30, 1934.

Lester Reginald Weeks, Trenton, Fla.; Atlanta College of Physicians and Surgeons, 1908; aged 57; died Dec. 26, 1934.

Thomas J. Acton, Eubank, Ky.; Eclectic Medical Institute, Cincinnati, 1891; aged 70; died, January 23, of pneumonia.

Harry Orson Miller, Hemet, Calif.; Cooper Medical College, San Francisco, 1893; aged 62; died, Dec. 3, 1934.

Will C. Strother, Bowling Green, Ky.; Louisville Medical College, 1897; aged 64; died, January 29, of heart disease.

Llewellyn James Williams, Los Angeles; Louisville (Ky.) Medical College, 1906; aged 55; died, Nov. 14, 1934.

Hugh O. Morgan, White, S. D.; Fort Wayne (Ind.) College of Medicine, 1894; aged 66; died, January 2.

Frank Stacy Hawley, Los Angeles; Rush Medical College, Chicago, 1904; aged 62; died, Nov. 5, 1934.

Bureau of Investigation

ANOTHER QUESTIONNAIRE

Expert Testimony Required; Price: Six Bottles of Beer

Repeatedly has this department of THE JOURNAL discussed the plague of questionnaires that is visited on the medical profession. In its essentials the questionnaire nuisance, as it afflicts the physician, is usually a letter written, occasionally openly and frankly on the stationery of some advertising agency, but more often written on the stationery of an organization that exists only on paper and described as some sort of "Research Bureau." Such bureaus are in reality merely names adopted by advertising agents or advertising agencies for the purpose of impressing the physician in their attempt to get expert testimony at no cost.

The entire scheme is an outgrowth of the deplorable tendency on the part of advertisers of all kinds of merchandise nowadays to adopt the old "patent medicine" angle in advertising their wares. "The medical profession says ——," "Science declares ——," "Physicians are of the opinion ——." Such are the leads used by the sellers of soap, of toilet papers, of food products, of household utilities and what not in the great game of breaking down sales resistance on the part of the ultimate consumer and the ballyhooing of the products.

The first of what seems likely to be another flood of questionnaires has just been sent in by a California physician. It is a three-page affair. The first page bears the letterhead "Lord & Thomas, Advertising, 235 Montgomery Street, San Francisco"; it is signed "M. Campbell, Director, Division of Research, Lord & Thomas." The letter itself, apparently mimeographed and, as usual, addressed "Dear Doctor," opens thus:

"*As between hard liquor and beer* for regular consumption, very probably you would advise your patients as a whole to drink *beer*, and you would have certain reasons for this.

"Will you do us a favor? We think you will be repaid for your courtesy in the suggestions that we expect to make to millions of people, urging that they 'see their physicians' with regard to the drinking of beer in connection with such troubles as indigestion, nervousness, sleeplessness, etc."

Then follows another paragraph in which Lord & Thomas state that they believe that they are "going to do a great deal of good along the lines of *temperance* in an advertising campaign for a client." The client, apparently, is somebody who sells beer, and Lord & Thomas ask the physician to make a check-mark opposite a "yes" or a "no" which will only take the physician a moment and will be a contribution "to the cause of better public enlightenment."

The two pages that accompany the descriptive letter are mimeographed sheets in which questions are asked and after which "Yes" and "No" squares are placed for the physician to mark with a cross if he is so inclined. There is, however, considerable space left after each question for "Additional comment, if any." The questionnaire proper is prefaced with this paragraph:

"Assuming that people are fairly normal in health and that the 'indispositions' referred to are not chronic ailments requiring the immediate attention of a physician, would you say that the following statements are fair assertions of the qualifications of beer as a beneficial beverage?"

After stating that the company would not use the physician's name in connection with any publicity without his consent, there then follows the general heading: "STATEMENTS FOR YOUR AGREEMENT, IF YOU ARE IN AGREEMENT," under which are to be found the following categorical statements and questions to which the physician is expected to answer "Yes" or "No."

"1. Beer with meals aids digestion due to its moderate and well balanced content of alcohol.

"2. Beer is soothing to the nerves due to the mildly sedative properties of the hops used in the brewing process.

"3. Beer taken before retiring at night tends to induce sleep, or to aid people in getting to sleep, due to the nourishment it puts into the stomach and its mildly relaxing effect.

"4. Beer, in many cases, acts as a mild, general tonic tending towards raising the body-tone of people who, although not actually ill, may be said to be 'under par.'

"5. The mere additional consumption of liquid by the body that the drinking of beer represents is beneficial to the general body-tone and the skin because it tends to flush the system of impurities.

"6. Have you ever prescribed beer in connection with the following disorders: Digestive; Nervous; Sleeplessness; Run Down Condition; Need of Tonic; Underweight; Insufficient Liquid Intake; Convalescence; Nursing Mothers?

"7. Is beer fattening, and under what conditions?

"8. Is beer non-fattening, and under what conditions?

"9. Do you regard the general drinking of beer instead of hard liquors as promotion of a beneficial temperance?"

These are the statements and questions after which the doctor is asked to place either "Yes" or "No" and write any additional comments that he may care to make. At the end of the questionnaire is a space for the doctor's name and address; a "business reply" envelop requiring no postage is enclosed.

Most of the questionnaires that physicians receive are, as has already been stated, sent out under false representations as coming from some imposingly named but non-existent research bureau. Furthermore, the only thing the physician is usually offered for his expert testimony is thanks, although there have been some exceptions to this. One may recall the questionnaire that was sent out by Lord & Thomas and Logan of New York in 1927, when physicians were asked to give their expert opinion on the question of whether or not the "toasting process" applied to tobacco was likely to free the cigaret from irritation to the throat. Lord & Thomas and Logan in that case wrote frankly on the company's stationery and stated at the outset that the physician to whom the question was addressed was being sent a carton of 100 Lucky Strike cigarets from the American Tobacco Company, the agency's client!

In the present instance Lord & Thomas of San Francisco state at the end of their questionnaire that if the physician would sign his name and address, they would have sent to his office or his home a "half-dozen bottles of beer (which we hope you will accept with our compliments)."

The sequel to the questionnaire on Lucky Strikes was that the exploiters of that particular brand of cigarets claimed that over 18,000 physicians answered the question in the affirmative—although it was obviously a question that not one physician in a thousand had the technical knowledge on which a scientific opinion could be predicated.

One wonders just how many physicians will consider six bottles of beer (retail value, presumably, about 90 cents) a recompense for specialized knowledge asked by Lord & Thomas.

The questionnaire nuisance will persist as long as physicians play the part of easy marks. Can one imagine for a moment any advertising agency trying to get free legal advice by the questionnaire method? One cannot in this connection do better than call to mind an incident already brought to the attention of the readers of this department of THE JOURNAL in the case of another questionnaire. In May 1926, Lord & Thomas—this time of Los Angeles—sent letters to dermatologists stating that in the interests of their client, the California Fruit Growers Exchange, they were "making a special investigation of the effect of lemon juice when used as a hair rinse" and would be grateful if the physician would answer the questions that Lord & Thomas were sending. There were nine such questions, each technical and calling for special knowledge. A well known eastern dermatologist who received one of these pieces of circularization, instead of returning the questionnaire, wrote to the agency as follows:

"If your client desires to investigate the effect of lemon juice as a hair rinse, I have no doubt that you can employ reputable experimenters to make such an investigation. Your request for filling out of questionnaire and obtaining of information gratuitously from physicians, I consider an excellent example of colossal nerve and impertinence."

We believe this physician's attitude was 100 per cent sound. The questionnaire nuisance can be abolished overnight if the medical profession will refuse to play into the hands of advertising agencies and would consign all questionnaires from such sources to the wastebasket.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TREATMENT OF ASTHMA

To the Editor:—I have a patient, aged 29, the wife of a dentist, who has been having severe attacks of asthma for some time. All tests have been essentially negative and medication does not give much relief except temporarily. She cannot stand a high altitude and when she is in this city, which has an elevation of 1,010 feet, the attacks are daily and in the last week have been constant. Change of climate even for short distances seems to help. Will you be kind enough to give me some suggestions for this condition, which I believe to be one of true bronchial asthma, and also what climate and elevation would be desirable. Please omit name.

M.D., West Virginia.

ANSWER.—In answering this query it is to be assumed, first of all, that the diagnosis is correct and, secondly, that the skin tests have been carefully and completely carried out. Wheezing and dyspnea occur in other conditions besides bronchial asthma.

The diagnosis should be supported by a history of attacks, by a history of allergy in other members of the family, by other allergic conditions in the patient herself, e. g., urticaria or hay fever, by an eosinophilia in the blood and sputum, and by a favorable response to injections of epinephrine. The tests should be carried out as thoroughly as possible and should be done by one trained in this type of work, not by an ordinary laboratory technician with no clinical experience. If anything is uncovered by these tests, elimination of the offending substance is the best method of treatment.

Granting that the diagnostic procedures have been carried out and have failed to disclose the cause of attacks, one is forced to fall back on nonspecific treatment, which, while helpful, does not as a rule yield such good results as specific treatment. Climate itself helps in a few cases, but as there is no one climate suitable for all asthmatic persons it is necessary to try various places. Tucson, El Paso and similar climates seem to help some patients. On the whole, warmth helps most asthmatic patients unless the asthma happens to be due to pollens. A simple procedure is to sew in the pillows and mattress with a light rubber sheeting; this helps those sensitive to feathers and house dust; the rubber covering should be washed once a week. Removal of any animals, such as cats or dogs, should be insisted on, no matter what the tests show. The face powder should be changed to a nonallergic brand.

Some cases are aided by removal of from 5 to 10 cc. of blood and injection of this quickly intramuscularly (autohemotherapy); some seem to be helped by intramuscular injections of a foreign protein, as boiled milk. Other nonspecific measures are also available, if these fail. If the asthma is due to some inhalant, a week or two in a hospital room equipped with an air filter and with rubber-covered mattress and pillows should clear up the condition, temporarily at least.

For the attacks, epinephrine hypodermically and ephedrine by mouth are best; opiates should be avoided as much as possible.

TREATMENT OF SYPHILIS

To the Editor:—At the age of 19, a man developed a chancre of the lower lip and gave a positive Wassermann reaction. He was given ten injections of neoarsphenamine and twenty injections intramuscularly of compounds of the heavy metals, bismuth and arsenic. The Wassermann reaction after a rest period was plus minus in the alcoholic antigen and negative in the cholesterinized antigen. A second course was given in which only four neoarsphenamine injections were given, plus twenty of a bismuth compound. Then again following a rest period, a Wassermann reaction of the blood was negative. The man is now 29 years of age, eleven years having elapsed since the primary chancre occurred. He has had periodic semiannual Wassermann examinations, which have all been negative. About a year ago a spinal puncture was done which came back negative. Now this man is a social service worker and happened to hear Dr. Stokes give a lecture on syphilis last week. Dr. Stokes' contention at that time was that all early cases, such as he had, should receive at least thirty to forty injections of neoarsphenamine and many more injections of a bismuth compound than he had received. The man is quite concerned about the question as to whether he had adequate treatment at that time and has asked me to advise him accordingly. At the present time he shows no signs or symptoms of syphilis. Blood Wassermann and Kahn tests were both negative. Would you advise him to have any further treatment or merely tell him to go about his business and that he is cured as far as can be humanly told? Kindly omit name and address.

M.D., New York.

ANSWER.—In considering a situation of this sort, it is necessary to take into account the fact that much or little treatment may, under unknown favoring circumstances, produce a "cure" of syphilis. In fact, spontaneous cure is well supported by such evidence as that of the Bruusgaard series. From the standpoint of a standardized system of treatment for early syphilis, there can be no doubt that the management of the case was inadequate from the standpoint of the amount of treatment, the introduction of rest periods, the presence of weak or doubtful positives, and the use of the Wassermann test as an indication for cessation and resumption of treatment. It is against all these undesirable practices that the recently published standardization has been directed. The situation so far as this man is concerned, however, is that the disease is probably arrested but that he must remain under lifelong observation. Particular attention in situations of this sort should be paid to the cardiovascular mechanism, and the patient should at once receive a complete heart study, including teleroentgenogram, study of the physical signs, visualization of the aorta with the fluoroscope, and electrocardiograms. Under no circumstances should he be told "to go about his business, that he is cured so far as can be humanly told." Lifelong observation in view of the still existing uncertainties regarding the complete curability of the disease is not an unreasonable requirement and, if tactfully presented to the patient, assumes the guise of a health measure and need not give rise to phobias.

CEREBRAL HEMORRHAGE—AMYL NITRITE TEST—"SILENT AREAS"—QUININE SALICYLATE

To the Editor:—1. In either a cerebral hemorrhage or a thrombosis, is the improvement of the ensuing symptoms brought about by the absorption of the clot or by the collateral circulation? Are there any methods or signs whereby the extent of cerebral arteriosclerosis can be determined? 2. Of how much value is the amyl nitrite test of Stieglitz? 3. Can a patient suffer a cerebral hemorrhage of the so-called silent places without pronounced symptoms? 4. Does quinine salicylate raise blood pressure in ordinary doses? Kindly omit name.

M.D., Illinois.

ANSWER.—1. The gradual improvement that follows the acute and profound symptoms of cerebral accident is due primarily neither to absorption of the clot nor to the development of a collateral ciculation but should be attributed to the subsidence of the generalized cerebral edema, which is subsequent to either cerebral hemorrhage or thrombosis. The coma of apoplexy is probably largely a result of increased intracranial pressure from edema of the brain. With the subsidence of this edema the cerebral vessels are less compressed and the general asphyxia of the brain is relieved. The areas actually destroyed by pressure or infiltration of the hemorrhage and by the profound histanoxia are irrevocably destroyed. This destruction is responsible for the persistence of the permanent neurologic symptoms. When only small areas are involved, and especially the cortex rather than the deep tracts, the permanent evidences of nerve tissue destruction may be most inconspicuous. Acute angiospasms, if sufficiently brief so that no necrosis results, may cause symptoms closely simulating apoplexy but without permanent signs of destruction of nervous tissue.

Clinical determination of cerebral arteriosclerosis (scarring of the intima of the larger vessels) is almost impossible. Arteriosclerosis frequently exists with no demonstrable impairment of the circulation until sudden thrombosis and/or hemorrhage precipitates the critical picture of apoplexy. Indirectly evidence of arteriosclerosis of the aorta or main arterial trunks is presumptive of some cerebral involvement. On the other hand, arteriolosclerosis of the smaller arteries and arterioles, due primarily to changes in the media, may be estimated with a fair degree of accuracy. Arteriolosclerosis is a consequence of hypertensive arterial disease and therefore invariably associated with hypertension. The progressive degeneration in the arterioles probably is the result of the arteriolar spasticity which is likewise responsible for the hypertension. The rate of progression of these degenerative changes is not uniform but varies greatly both in different individuals and in different areas of the body. Therefore the duration of the hypertensive disease is a totally inadequate guide to the extent of sclerosis. Neither is the height of the blood pressure an effective criterion.

2. The amyl nitrite test of Stieglitz has proved to be of great usefulness in estimating the average extent of arteriolosclerosis for the body as a whole. Sclerotic vessels are not relaxable by amyl nitrite, whereas spastic arterioles are temporarily relaxed. The test does not and cannot be expected to yield information regarding the condition of the arterioles of specific areas. A marked reduction of the diastolic tension on inhalation of amyl nitrite indicates that there is little or no sclerosis and therefore is presumptive evidence of fairly normal cerebral vessels. On the other hand, a failure of the diastolic tension to fall notably is strong evidence of generalized arteriolosclerosis in which the cerebral vessels are probably also involved. Cerebral sclerosis may be somewhat more or less

marked than the test indicates, but it gives one most useful information regarding the condition of the arterioles as a whole. Ophthalmoscopic inspection of the retinal arteries is the most direct method of evalution of the condition of the cerebral vessels. Cerebral and retinal arteriosclerosis usually, although not invariably, are approximately parallel in degree. As the retina is truly an extension of the brain, this is not surprising. With an extensive drop in the diastolic tension on inhalation of amyl nitrite and nearly normal retinal arteries as observed on ophthalmoscopic examination, one may justifiably conclude that cerebral arteriosclerosis is absent or but minor. The converse, of course, is also true.

3. Very minute cerebral hemorrhages into the so-called silent areas could occur without pronounced symptoms. Involvement of anything but the smallest branches of the arteries, however, would cause generalized symptoms at the time of the accident because of the increased intracranial pressure due to edema. After subsidence of the acute phenomena, no permanent injury may be detectable. It is quite probable that many of the acute and transient attacks of aphasia, hemiparesis and monoplegia are due to arterial spasm or vascular crises (Reisman) rather than to hemorrhage or thrombosis.

4. Ordinary doses of quinine salicylate do not raise the arterial tension. In individuals abnormally sensitive to either salicylates or quinine, even small doses may upset the equilibrium of the vasomotor tone.

FUNGI IN SHOES

To the Editor:—An intelligent and observant patient has noticed that after he has worn a pair of new shoes for a month or so a green fungoid growth appears inside the shoe near the toe. This is accompanied by a marked odor. He is clean, washing daily, changing his socks every morning, and alternating between two sets of shoes. This fungus does not occur in all shoes and is more noticeable in warm weather. In cold weather the fungus disappears and the disagreeable odor vanishes. He is not suffering with epidermophytosis or any other skin lesion of his feet that could possibly be transmitted to the shoes. He is anxious to know what to do to destroy the fungus and what deodorant is recommended, since the ordinary remedies and disinfectants are useless, besides the expense of having to discard comparatively new shoes. Please omit name.

M.D., New York.

ANSWER.—The infecting fungus is introduced into the shoe by the sock. The patient probably wears silk socks, which, though washed, are not boiled and so retain the infection or, if they are boiled, become reinfected in some way. Silk can be sterilized by soaking it for twelve hours in a 1 : 1,000 solution of corrosive mercuric chloride before washing.

After as much as possible of the fungus has been wiped out of the shoe, it should then be sponged inside with strong formaldehyde solution, care being taken not to get it on the hands. Then a piece of cotton or blotting paper saturated with formaldehyde should be left in the toe of the shoe and the shoe should be wrapped securely in paper. After twenty-four hours the cotton or blotter should be removed and the shoe aired thoroughly before it is again worn. Fungi are very difficult to remove from leather, and repeated treatments may be necessary.

ASTHMA AND CONTINUED USE OF EPINEPHRINE

To the Editor:—A man who for many years has been troubled with hay fever and an associated asthma has been in the habit of purchasing epinephrine at the drug store and administering it hypodermically for relief from attacks. Over a period of several years he has steadily developed a tolerance for the drug and consequently has had to increase it, from time to time, in dosage. When I first saw him he came in complaining of dizziness and extreme weakness of the asthmatic type. The most pertinent finding in the examination was a blood pressure reading of 88 systolic, 60 diastolic. Second to this was the hemoglobin, 58 in Sahli units. He also had several abscessed teeth. What I should like to know is whether or not the taking of epinephrine in large doses has had anything to do with the hypotension. Since the systolic pressure is high enough to give a pulse pressure of 28 mm. of mercury, it would seem to be primarily a vascular weakness and not so much myocardial. There are no evidences aside from that mentioned of Addison's disease. The man is 42 years old. The anemia is of the hypochromic type. Please omit name.

M.D., Minnesota.

ANSWER.—Many patients with chronic asthma have been forced to use epinephrine for long periods. It is the unanimous opinion of all specialists in this field that the continued use of epinephrine does not tend to cause habit formation. It is likewise agreed that the continued use of epinephrine has no effect whatever on the blood pressure; it neither increases it nor decreases it (von Gordon, L.: *Schweiz. med. Wchnschr.* **54**:330 [April 3], 352 [April 10] 1924. Pagniez, P., and Escalier, A.: *Bull. Soc. méd. d. hôp. de Paris* **50**:619 [April 23] 1926; abstr. THE JOURNAL, June 19, 1926, p. 1948). As a matter of fact, if a patient has a hypertension and also has an attack of bronchial asthma, epinephrine is given as if the hypertension did not exist. The blood pressure usually falls after the attack is over.

In this case the hypotension and the anemia may have little to do with the bronchial asthma. The dizziness described probably results from the continued use of epinephrine and along with this one often finds pallor, tachycardia, palpitation and blurring of vision. These symptoms all cease when the epinephrine is withdrawn.

If they have not already been done, a complete examination and skin tests should be made to try to find the cause of the asthma.

PHLEBITIS

To the Editor:—A woman, aged 45, has a network of superficial varicosities in both legs and extending above both knees. Each time she has to be in bed for a few days she develops thrombosis, and she has been advised by good men never to be operated on. When she is up, however, and wears good elastic stockings, she has very little trouble. Routine tests for deep venous involvements are positive. In fact, a few years ago a physician attempted the injection method of treatment but had to discontinue it on account of ill results. It seems that an operation (gallbladder) is inevitable for this woman, and I should like to know the best precaution to take against thrombosis and phlebitis. I might add that the patient has no cardiorenal involvement. Please omit name.

M.D., Texas.

ANSWER.—In patients of the type described, a thorough search for sources of infection should be made; the teeth, tonsils and low grade pelvic infection are the chief foci. Nothing is mentioned about the onset of these varicosities, but if there is a deep venous obstruction it probably originated from a pelvic thrombosis following childbirth, operation or some infectious disease. The activity of the phlebitis can be gaged by the determination of the sedimentation time. There is no absolute safeguard against postoperative phlebitis, but the following measures seem to diminish its incidence: 1. A fluid intake of 3,000 cc. before and the first two weeks after the operation. 2. The maintenance of normal blood pressure and circulation with the help of caffeine and ephedrine after the operation. 3. A Trendelenburg position of 30 degrees after the operation, which should be maintained so long as the patient is immobilized. 4. Early respiratory and muscular exercises and early mobilization of the patient.

OPERATION ON FISSURE OF LIP

To the Editor:—I would like information as to the best method of operating on a central fissure of the lower lip. The lesion has been treated in every conceivable manner over a period of several years by several different physicians and is steadily becoming worse. A small amount of granulation-like tissue on either side of the fissure, covering an area about the size of a flat surface of a split pea, proved at biopsy to be benign and apparently is tissue reaction to the chronic inflammation resulting about the region of the fissure. The patient is a white man, aged 35. Kindly omit name.

M.D., California.

ANSWER.—The preferable method of treating such a persistent fissure of the lip is to excise it, including a V extending down on the lower lip some distance below the red margin. This will permit a good plastic closure with no puckering and no noticeable deformity if the red margins are carefully approximated and the edges sutured accurately with fine silk. The slightly narrower lower lip will be scarcely noticeable after a few months.

LAVENDER COLORATION OF GRAY HAIR

To the Editor:—A woman, aged 42, has been under treatment for four years for hypertension and coronary sclerosis. Twice during this period her hair, naturally gray, has assumed a lavender tint. No applications have been made and she has not changed her shampooing materials. Her medication has been largely barbiturates and other sedatives, though she has recently taken dinitrophenol. Can you suggest any reason for this peculiar discoloration of the hair?

EDWARD F. MALLOY, M.D., Stamford, Conn.

ANSWER.—Isn't the patient using bluing in her rinsing water after the shampoo? If so, she should cease the use of it. Any such change of color must be from an external cause. It may be that on these occasions the bluing was used too lavishly.

THYROID EXTRACT AND BLOOD SUGAR

To the Editor:—Will thyroid extract in suitable doses have a tendency to raise the blood sugar in an obese, elderly white woman with diabetes?

N. L. MISTACHKIN, M.D., St. Louis.

ANSWER.—Yes.

Council on Medical Education and Hospitals

ABSTRACT OF MINUTES OF THE COUNCIL BUSINESS MEETING HELD AT CHICAGO, FEB. 17, 1935

1. In September 1933 the Council on Medical Education and Hospitals recognized the necessity of a restudy of medical education and decided on a reinspection and reclassification of the medical schools of the country. In February 1934 a special appropriation was voted by the Board of Trustees of the American Medical Association and in September of that year Dr. Herman G. Weiskotten began the personal inspection of some of the schools. It is the policy of the Council to employ two inspectors in each visit in order to eliminate as far as possible the personal equation and to secure well balanced and dependable reports. In addition to the class A medical schools of the United States, Canadian schools have voluntarily requested that they be included in this study. The Council has also determined to include in the survey the unrecognized medical schools. To date, twenty-eight schools have been visited.

2. During the year 1934, inspections of hospitals and technician schools were made as follows:

(*a*) Hospitals

Tuberculosis sanatoriums	230	
Intern hospitals	157	
Residency hospitals	30	
Small hospitals	152	
Other registered hospitals	23	
Total		592*

* Twenty of these hospitals are maintained exclusively for Negroes.

(*b*) Schools for Technicians

Schools of laboratory technic	85	
Schools of physical therapy	23	
Schools of occupational therapy	6	
Total		114
Total number of inspections		706

3. It was resolved that the approval of a medical school be withdrawn at the first meeting of the Council if on inspection it is found that it does not and cannot possibly meet the standards of the Council.

4. It was resolved that at the close of the current academic year the Council should review all inspections that have been made and take appropriate action.

5. It was resolved that a communication be sent officers of medical schools calling attention to the following paragraph from the Essentials of an Acceptable Medical School.

> The number of students to whom an adequate medical education can be given by a college is related approximately to the laboratory and hospital facilities available and to the size and qualifications of the teaching staff. A close personal contact between students and members of the teaching staff results in an efficiency which is not possible in an institution where the number of students is excessive.

Although only about one third of the schools have been visited, it is already apparent that this requirement of the Essentials is not being generally met and that a large proportion of the schools are accepting larger numbers of students than they can properly teach.

6. The Council's survey of medical education was discussed at a luncheon with the executive council of the Association of American Medical Colleges and it was suggested that a survey of postgraduate medical education should be undertaken. The Council requested that this suggestion be placed on record to be considered at a later date.

7. It was resolved that the proposed Essentials of an Approved School of Occupational Therapy be approved.

8. It was resolved that section A, No. 3, of the Essentials for Examining Boards in Specialties, be changed to include the words italicized as follows:

> Membership in the American Medical Association, or by courtesy, membership in such Canadian *or other* medical societies *as are recognized for this purpose* by the Council on Medical Education and Hospitals of the American Medical Association. *Except as here provided,* membership in other societies should not be required.

9. It was resolved that section III, C, No. 3, of the Essentials for Examining Boards in Specialties, be amended to include the words italicized as follows:

> An additional period of not less than two years of *study and/or* practice.

10. It was resolved that special boards applying for approval should file copies of their official records with the Council as well as with the Advisory Board for Medical Specialties.

11. It was resolved that, if competent, a physician might be certified by more than one special examining board.

WILLIAM D. CUTTER, M.D., Secretary.

ADDITIONAL HOSPITALS APPROVED

The Council on Medical Education and Hospitals of the American Medical Association has given its approval to the following hospitals since the publication of the last previous list in THE JOURNAL, Nov. 10, 1934:

Hospitals Approved for Intern Training

ARMY HOSPITALS

Letterman General Hospital, San Francisco.
Fitzsimons General Hospital, Denver.
Walter Reed General Hospital, Washington, D. C.
William Beaumont General Hospital, El Paso, Texas.
Station Hospital, Fort Sam Houston, San Antonio, Texas.

PUBLIC HEALTH SERVICE HOSPITALS

U. S. Marine Hospital, San Francisco.
U. S. Marine Hospital, Chicago.
U. S. Marine Hospital, New Orleans.
U. S. Marine Hospital, Baltimore.
U. S. Marine Hospital, Ellis Island, New York City.
U. S. Marine Hospital, Staten Island, N. Y.
U. S. Marine Hospital, Norfolk, Va.
U. S. Marine Hospital, Seattle.

Evangelical Hospital, Chicago.
St. Joseph's Hospital, Joliet, Ill.
Wichita Hospital, Wichita, Kan.
Evangelical Deaconess Hospital, Detroit.
Burlington County Hospital, Mount Holly, N. J.
St. Joseph Hospital, Paterson, N. J.
Bushwick Hospital, Brooklyn.
Kingston Hospital, Kingston, N. Y.
Misericordia Hospital, New York City.
Trinity Hospital, Minot, N. D.
Knoxville General Hospital, Knoxville, Tenn.
St. Mary's Hospital, Milwaukee.

Hospitals Approved for Residencies in Specialties

Compton Sanitarium, Compton, Calif. Psychiatry.
Central Dispensary and Emergency Hospital, Washington, D. C. Medicine and surgery.
Freedmen's Hospital, Washington, D. C. Medicine, surgery, pediatrics, gynecology and obstetrics.
Western Maine Sanatorium, Greenwood Mountain, Me. Tuberculosis.
Rutland State Sanatorium, Rutland, Mass. Tuberculosis.
Shriners' Hospital for Crippled Children, Springfield, Mass. Orthopedics.
Middlesex County Sanatorium, Waltham, Mass. Tuberculosis.
Dr. William J. Seymour Hospital, Eloise, Mich. Medicine, surgery, urology, ophthalmology and otolaryngology.
Wheatley-Provident Hospital, Kansas City, Mo. Pediatrics.
Atlantic City Hospital, Atlantic City, N. J. Mixed.
New Jersey State Hospital, Greystone Park, N. J. Psychiatry.
Burlington County Hospital, Mount Holly, N. J. Surgery.
Bender Hygienic Laboratory, Albany, N. Y. Pathology.
Norwegian Lutheran Deaconesses' Home and Hospital, Brooklyn. Medicine, surgery, pediatrics and obstetrics.
U. S. Marine Hospital, Ellis Island, New York City. Psychiatry.
St. Anthony's Hospital, Oklahoma City, Okla. Surgery and mixed.
Eagleville Sanatorium for Consumptives, Eagleville, Pa. Tuberculosis.
Roper Hospital, Charleston, S. C. Medicine and surgery.
Medical Arts Hospital, Dallas, Texas. Mixed.

Hospitals Approved for Additional Residencies

Indianapolis City Hospital, Indianapolis. Urology and psychiatry.
Kings County Hospital, Brooklyn. Tuberculosis, orthopedics, neurosurgery, plastic surgery, radiology, pathology, and dermatology-syphilology.
City Hospital, Cleveland. Radiology and urology.
Rhode Island Hospital, Providence, R. I. Fractures.
John Sealy Hospital, Galveston, Texas. Radiology.

Medical Examinations and Licensure

COMING EXAMINATIONS

ALASKA: Juneau, March 5. Sec., Dr. W. W. Council, Juneau.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Written (Group B candidates).* The examination will be held in various cities throughout the country, April 29. *Oral (Group A and Group B candidates).* New York, June 10. Sec., Dr. C. Guy Lane, 416 Marlborough St., Boston.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Written (Group B candidates).* The examination will be held in various cities of the United States and Canada, March 23. *Final oral and clinical examination (Group A and Group B candidates).* Atlantic City, N. J., June 10-11. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD OF OPHTHALMOLOGY: Philadelphia, June 8, and New York, June 10. *Application must be filed at least sixty days prior to date of examination.* Sec., Dr. William H. Wilder, 122 S. Michigan Blvd., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: New York, June 8. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

AMERICAN BOARD OF PEDIATRICS: Atlantic City, N. J., June 10, and St. Louis, Nov. 19. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Ill.

ARIZONA: *Basic Science.* March 19. Sec., Dr. Robert L. Nugent, Science Hall, University of Arizona, Tucson. *Medical.* Phoenix, April 2-3. Sec., Dr. J. H. Patterson, 826 Security Bldg., Phoenix.

CALIFORNIA: *Reciprocity.* Los Angeles, March 13. Sec., Dr. Charles B. Pinkham, 420 State Office Building, Sacramento.

COLORADO: Denver, April 3. Sec., Dr. Wm. Whitridge Williams, 422 State Office Bldg., Denver.

CONNECTICUT: *Regular.* Hartford, March 12-13. *Endorsement.* Hartford, March 26. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden. *Homeopathic.* March 12. Sec., Dr. J. H. Evans, 1488 Chapel St., New Haven.

IDAHO: Boise, April 2. Commissioner of Law Enforcement, Hon. Emmitt Pfost, 203 State House, Boise.

ILLINOIS: Chicago, April 9-11. Superintendent of Registration, Department of Registration and Education, Mr. Eugene R. Schwartz, Springfield.

MAINE: Portland, March 12-13. Sec., Board of Registration of Medicine, Dr. Adam P. Leighton Jr., 192 State St., Portland.

MASSACHUSETTS: Boston, March 12-14. Sec., Board of Registration in Medicine, Dr. Stephen Rushmore, 144 State House, Boston.

MINNESOTA: *Basic Science.* Minneapolis, April 2-3. Sec., Dr. J. Charnley McKinley, 126 Millard Hall, University of Minnesota, Minneapolis. *Medical.* Minneapolis, April 16-18. Sec., Dr. E. J. Engberg, 350 St. Peter St., St. Paul.

MONTANA: Helena, April 2. Sec., Dr. S. A. Cooney, 7 W. 6th Ave., Helena.

NATIONAL BOARD OF MEDICAL EXAMINERS: The examination will be held in all centers where there are Class A medical schools and five or more candidates desiring to take the examination, June 24-26. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

NEW HAMPSHIRE: Concord, March 14-15. Sec., Board of Registration in Medicine, Dr. Charles Duncan, State House, Concord.

NEW MEXICO: Santa Fe, April 8-9. Sec., Dr. P. G. Cornish Jr., 221 W. Central Ave., Albuquerque.

OKLAHOMA: Oklahoma City, March 12-13. Sec., Dr. J. M. Byrum, Mammoth Bldg., Shawnee.

PUERTO RICO: San Juan, March 5. Act. Sec., Dr. Ramón M. Suarez, Box 536, San Juan.

RHODE ISLAND: Providence, April 4-5. Dir., Public Health Commission, Dr. Lester A. Round, 319 State Office Bldg., Providence.

WEST VIRGINIA: Charleston, March 18. State Health Commissioner, Dr. Arthur E. McClue, Charleston.

WISCONSIN: *Basic Science.* Madison, March 16. Sec., Prof. Robert N. Bauer, 3414 W. Wisconsin Ave., Milwaukee.

Minnesota October Report

Dr. E. J. Engberg, secretary, Minnesota State Board of Medical Examiners, reports the oral, written and practical examination held in Minneapolis, Oct. 16-18, 1934. The examination covered 12 subjects and included 60 written questions. An average of 75 per cent was required to pass. Sixty candidates were examined, all of whom passed. One physician was licensed by reciprocity and 1 physician was licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
University of California Medical School		(1934)	92.5
Emory University School of Medicine		(1932)	93.3
Northwestern University Medical School		(1932) (1933)	90.4, 91.2,
Rush Medical College		(1933)	86.6, (1934) 88.4
School of Medicine of the Division of the Biological Sciences		(1932)	86
Indiana University School of Medicine		(1930)	82.3
State University of Iowa College of Medicine		(1933)	89.6
University of Maryland School of Medicine and College of Physicians and Surgeons		(1932)	89.5
Tufts College Medical School		(1932)	92
University of Michigan Medical School		(1931)	85.3
University of Minnesota Medical School		(1932) (1933)	87.2, 85.4, 86.2, 86.3, 86.3, 88, 88.5,* 89.1,* 90.1, 90.2, 90.4, 93,* (1934) 83.5,* 84,* 84.6, 86, 86.2, 87.3, 87.3, 87.6,* 88, 88.1,* 88.3, 88.5,* 89.1, 89.2, 89.4, 89.4,* 90.1, 90.2,* 90.5, 90.5,* 90.5,* 91.2,* 92.3,* 93,* 94.6
University of Nebraska College of Medicine		(1929)	86.3
University of Pittsburgh School of Medicine		(1933)	91.3
Medical College of Virginia		(1933)	89
University of Virginia Department of Medicine		(1933)	90.6
Marquette University School of Medicine		(1934)	89.1
University of Wisconsin Medical School		(1933)	88.4
University of Manitoba Faculty of Medicine		(1933)	91.4
Dalhousie University Faculty of Medicine		(1933)	87.3
McGill University Faculty of Medicine		(1928) 85.2, (1933)	90.1

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Rush Medical College		(1923)	Illinois

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Syracuse University College of Medicine		(1933)	N. B. M. Ex.

One physician was licensed by endorsement on December 8. The following school was represented:

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
New York University, University and Bellevue Hospital Medical College		(1932)	N. B. M. Ex.

* This applicant has received his M.B. degree and will receive his M.D. degree on completion of internship.

Missouri October Examination

Dr. E. T. McGaugh, state health commissioner, reports the written examination held in Kansas City, Oct. 24-26, 1934. The examination covered 14 subjects. An average of 75 per cent was required to pass. Fourteen candidates were examined, 12 of whom passed and 2 failed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
University of Illinois College of Medicine		(1934)	84.8*
University of Kansas School of Medicine		(1930) (1931)	88, 86.2, (1934) 84.5, 85.5, 89.6
Washington University School of Medicine		(1934)	83.2
University of Pennsylvania School of Medicine		(1934)	83.9
Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin, Prussia, Germany		(1919)	76.1
Julius-Maximilians-Universität Medizinische Fakultät, Würzburg, Bavaria, Germany		(1931)	81.1†
Ludwig-Maximilians-Universität Medizinische Fakultät, München, Bavaria, Germany		(1912)	80.2†
Licentiate of the Royal College of Physicians, of the Royal College of Surgeons, Edinburgh, and of the Royal Faculty of Physicians and Surgeons of Glasgow		(1934)	82.5†

School	FAILED	Year Grad.	Per Cent
Schlesische-Friedrich-Wilhelms-Universität Medizinische Fakultät, Breslau, Prussia, Germany		(1934)	72.7†
Regia Università degli Studi di Palermo Facoltà di Medicina e Chirurgia		(1929)‡	

Eight physicians were licensed by reciprocity and 3 physicians were licensed by endorsement from September 12 to November 14. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Arkansas School of Medicine		(1933,2), (1934)	Arkansas
Northwestern University Medical School		(1933)	California
Rush Medical College		(1934)	Illinois
University of Kansas School of Medicine		(1933)	Kansas
University of Buffalo School of Medicine		(1925)	New York
University of Pennsylvania School of Medicine		(1930)	Mass.

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Harvard University Medical School		(1927)	N. B. M. Ex.
University of Minnesota Medical School		(1934)	N. B. M. Ex.
St. Louis University School of Medicine		(1933)	N. B. M. Ex.

* This applicant has completed his medical course and will receive his M.D. degree on completion of internship.
† Verification of graduation in process.
‡ Average grade not reported. Verification of graduation in process.

Ohio Reciprocity and Endorsement Report

Dr. H. M. Platter, secretary, Ohio State Medical Board, reports 30 physicians licensed by reciprocity and 2 physicians licensed by endorsement, Oct. 2, 1934. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Yale University School of Medicine		(1928)	Maryland
Howard University College of Medicine		(1931) (1933)	Kansas, Missouri
Emory University School of Medicine		(1930)	Georgia
Rush Medical College		(1933)	W. Virginia
Indiana University School of Medicine		(1933)	Indiana
University of Louisville School of Medicine		(1928), (1929), (1933, 2)	Kentucky
University of Michigan Medical School		(1929, 2), (1930), (1931), (1932), (1933, 2)	Michigan
Wayne University College of Medicine		(1934)	Michigan, 2, Utah
St. Louis University School of Medicine		(1931, 2)	Missouri
University of Buffalo School of Medicine		(1933)	New York
Hahnemann Medical College and Hospital of Philadelphia		(1933)	New Jersey
University of Pittsburgh School of Medicine		(1933)	Penna.
Meharry Medical College		(1928) (1933)	Texas, Missouri, Tennessee
University of Tennessee College of Medicine		(1933)	Tennessee
Baylor University College of Medicine		(1929)	Texas

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Rush Medical College		(1929)	N. B. M. Ex.
University of Cincinnati College of Medicine		(1934)	N. B. M. Ex.

Book Notices

Recent Advances in Neurology. By W. Russell Brain, M.A., D.M., F.R.C.P., Physician to the London Hospital, and E. B. Strauss, M.A., D.M., M.R.C.P., Assistant Physician to the Cassel Hospital for Functional Nervous Disorders. Third edition. Cloth. Price, $5. Pp. 442, with 40 illustrations. Philadelphia: P. Blakiston's Son & Company, Inc., 1934.

The previous editions of this book have received favorable reviews. As in all books dealing with such highly technical material, differences of opinions by reviewers have indicated that there are parts in the present work that might be severely criticized. Probably the criticisms of previous editions were based on the fact that too much physiology and not enough clinical neurology was given. If one compares the past editions with the present one, a marked change for the better can be detected. A number of purely physiologic topics have been left in, but they have a more significant relationship to the clinical information given than did the topics that have been omitted. Between the second and third editions a number of important researches have been reported, and the most important of these are included in the present book. There is much material devoted to encephalomyelitis; also there is a good summary of the observations made during the St. Louis encephalitis epidemic. This book continues to hold its own as one of the best volumes in the "Recent Advances" series. The multifarious information available to the practitioner in neurology makes it necessary for him and his students to have a volume such as this for quick reference. Neurologists with individual hobbies to ride will continue to differ with the authors' treatment of almost every subject, but they will probably be forced to admit that outside of their own particular interest the book will appear to be satisfactory. The authors should be commended for their painstaking work and the amount of improvement they have brought about between the first and latest editions.

Eléments de chimie organique biologique: Introduction chimique à l'étude de la biologie générale. Par Michel Polonovski, professeur à la Faculté de médecine et de pharmacie de Lille, et Albert Lespagnol, agrégé de pharmacie à la Faculté de médecine et de pharmacie de Lille. Préface de A. Desgrez. Paper. Price, 100 francs. Pp. 594, with illustrations. Paris: Masson & Cie, 1934.

This is an encyclopedic presentation of the structural relations and properties of organic compounds of biologic importance or interest. The fundamental facts and reactions of elementary organic chemistry are not presented but most of these reactions are applied in developing the evidence for the structural formulas for the numerous substances under consideration. This evidence is given in the usual manner, however, without any emphasis on the quantitative character of the reaction involved. In common with most textbooks in organic chemistry, this volume is inaccurate on the biologic aspects; thus, the synthesis of carbohydrates and amino acids in plants, the true nature of hormones and their action and the origin and fate of the organic compounds are treated too simply. Insulin is simply considered as a protein without any suggestion as to the incompleteness of present knowledge of its composition. The testis hormone is stated as having been separated in crystalline form and that its actions were discovered by Brown-Séquard. Carbohydrates are discussed from the organic point of view. The evidence for the structure of the disaccharides and trisaccharides is presented together with valuable tables covering the physical and chemical properties of the substances. Polysaccharides and heterosides are adequately treated from the chemical point of view, but the statements about enzyme action on carbohydrates are entirely too brief to be accurate. Interesting information on phenols, terpenes and plant pigment is followed by the discussion of lipins. Here is a good presentation on the chemistry of the sterols, but the treatment of fats and phospholipins would have been much improved if a more quantitative point of view had been taken. The amino acids are treated very satisfactorily as such and their structural relations to bases and other products are presented clearly. Relatively little is given on the structure of the proteins. The blood and bile pigments, other porphyrins, and chlorophyll are presented quite completely. Many chapters contain short sections covering inadequately qualitative and quantitative methods for some of the substances discussed.

Gynecology. By Brooke M. Anspach, M.D., Professor of Gynecology, Jefferson Medical College. With the assistance of Philip F. Williams, M.D., Assistant Professor of Obstetrics, School of Medicine, University of Pennsylvania, and Lewis C. Scheffey, M.D., Assistant Professor of Gynecology, Jefferson Medical College. Fifth edition. Cloth. Price, $9. Pp. 832, with 679 illustrations. Philadelphia, London & Montreal: J. B. Lippincott Company, 1934.

In this edition of one of the best of American textbooks on diseases of women, many of the chapters have been rewritten entirely, such as those on endometriosis, ovarian tumors and the various menstrual disorders, and all the material in the book has been brought down to date by extensive rediting and resetting. The order of the chapters is traditional but logical, and this, together with easy readability, enhances the value of the book to both student and practitioner. The numerous illustrations are excellent and well selected, although some of them, especially those depicting obsolete procedures such as the Dudley and Pozzi operations on the cervix, might well have been omitted. By all the customary standards, therefore, the book may be warmly recommended. The only question would seem to be as to the size and scope of the volume. It is rather bulky, much larger and more closely set than in the early editions, and this detracts somewhat from its value for the student. There are textbooks that go to the opposite extreme, their brevity and condensation being attractive to the average student but making them less useful for the general practitioner or the gynecologist looking for fuller discussion. The large size of the present work is due chiefly to the inclusion of a good many rather general chapters, with chapters also on diseases of the urinary organs, diseases of the anus and rectum, and diseases of the abdominal viscera associated with pelvic disorders, as well as chapters on such subjects as the relation between nervous and gynecologic disorders, and vaccine and serum treatment. Every one knows that the gynecologist, like all other specialists, must know something of other fields, but whether a treatise on one specialty should include a smattering discussion of allied fields is at least open to question, particularly as every intelligent specialist has at command fuller sources of information on allied subjects. The size of the work could have been cut down materially without lessening its attractiveness to most readers, and with a real increase of its value to the medical student. This one criticism, however, does not alter the fact that the Anspach work is an excellent one and that it fully merits the popularity which it has had for so many years.

Histoire de la chirurgie française (1790-1920). Par. J. de Fourmestraux. Préface du Professeur J. L. Faure. Paper. Price, 30 francs. Pp. 232. Paris: Masson & Cie, 1934.

No more romantic or thrilling times can be conceived than those occurring in France from 1790 to the end of the Great War in 1920. It is natural that the turbulent days as well as the calm ones should be reflected in the personalities of the men living and working, studying and fighting during this period. It is not surprising, therefore, that a history of French surgery of these times, especially if well written, should abound with interesting characters, characters which like the times were turbulent or calm, passive or aggressive, overly ambitious or surprisingly self effacive. This history is well written and as a result it reads not like a textbook but like a novel. The history commences while surgery was living under the refulgent light of the Royal Academy, which light was forever dimmed in 1793. The early chapters have to do with the tragic hours of the Revolution—hours through which strong personalities such as Desault, Chopart, Deschamps and Alexis Boyer lived, bowed down or unaffected by the times, according to the personalities. The chapter on Dupuytren and his contemporaries is extremely good reading, leading up into the equally stimulating events following the description of the first introduction of general anesthesia. It is natural, of course, that the period of Pasteur, Championnière and others involved in the introduction of antisepsis in surgery should be replete with incidents of interest, especially to the modern surgeon, because during these periods much of what is in common use today was born. The actual history ends with the chapter on the war, although the final analysis, by the author, of the evolution and the future of surgery is a fitting closure for the work. The French is simple and can be easily read by any one with a moderate working knowledge of the language. The book is to be recommended to any physicians having interest in the history of medicine.

Heredity and Disease. By Otto L. Mohr, M.D., Professor of Medicine, the Royal Frederiks University, Oslo. Cloth. Price, $3.50. Pp. 253, with 107 illustrations. New York: W. W. Norton & Company, Inc., 1934.

This volume contains the Edward K. Dunham lectures at the Harvard Medical School in 1933 on Genetics and Pathology. The first half of the book explains in direct, lucid and simple terms the complicated mechanisms of heredity. The second half critically summarizes the major accumulations of data derived from medicine which reveal evidences of the factor of heredity in relation to disease, pathologic susceptibilities and abnormality in man.

Landsteiner's normal blood groups present a typical case of multiple allelomorphism. Falsely alleged paternity lends itself to partial determination by testing the blood group of mother, child and alleged father. In two thirds of such tests no answer in either direction can be given, but in one third of them a particular man might be excluded from the paternity in question; even in this third, however, no particular man can be proved to be the father, since the test merely reveals the blood group to which the father belongs.

Representative cases of hereditary disease and congenital defect are best known in the eye, since this organ is subjected to a great refinement of diagnosis. Thus both dominant and recessive types of microphthalmus are known, one of which is sex linked. This defect is often associated with cleft iris, cataract, opaque lens or lens luxation. Hereditary degeneration of the macula and retinitis pigmentosa both occur in dominant and recessive sex-linked forms and in 22 per cent of 366 pedigrees were associated with deafness. Optic atrophy is a fatal sex-linked recessive developing after puberty. Moon-eye, or congenital night-blindness, is a simple dominant traced for ten generations; but recessive sex-linked cases also occur. Red-green blindness in four distinct types is also perfectly sex linked. Glaucoma is both dominant and recessive sex linked, cataract mostly dominant; and a considerable number of pupils in schools for the blind are genetically blind. In the field of neuropathology (nerve diseases) different hereditary types of progressive muscular, neural or spinal dystrophies, of spastic spinal paralysis and paraplegia, of spinal ataxia (Friedreich's type) and cerebellar ataxia occur, conditions that all involve paralysis or lack of coordination of different parts of the muscular system. Further, Huntingdon's chorea, "St. Vitus' dance," associated with progressive mental disturbances, is typically dominant, while the progressive hepatolenticular degeneration known as Wilson's disease, in which both the liver and one of the so-called basal ganglions of gray matter in the brain are simultaneously affected, is recessive.

Deafness may be induced by different simple recessive genes, otosclerosis by a simple recessive gene, and harelip in varying degrees by a single dominant gene. Diabetes mellitus is inherited as a recessive, but cases of incomplete dominance are also known, while diabetes insipidus is a clear-cut dominant.

From case histories it appeared that various types of protein hypersensitiveness in man were inherited, but recently Ratner has shown that sensitizing antibodies pass through the placenta into the blood of the fetus. A varied body of evidence from plants and animals indicates that immunity may be distinctly hereditary. Examples are constantly multiplying of monofactorial mendelian inheritance of pathologic states in different fields of pathology, including dermatology, otology, orthopedics and dentistry. Mutations paralleling conditions in man are being recorded in laboratory animals, though it is not improbable that not a few of these are in reality of genetic origin.

Lethal genes are well known in experimental plants and animals and have been detected in domesticated animals. Ichthyosis congenita in man is due to a lethal gene, xeroderma pigmentosum and infantile amaurotic idiocy to sublethal ones. The primary sex ratio of 150 boys to 100 girls with a selective intra-uterine death rate, which reduces this ratio to 106 to 100 at birth, has been inferred to be due to lethal and sublethal sex-linked genes.

There is an extended discussion of disease in fraternal (dizygotic) and identical (monozygotic) twins, the upshot of which is marked support of the hereditary aspect of disease or of susceptibility to it, along with some evidence of the modifying effect of environmental conditions on its incidence. There are also discussions of intersexuality, sex reversal, pseudohermaphroditism, freemartins, genes and hormones, and x-rays and heredity.

While x-rays produce heritable mutation, there appears to be no sound evidence for the belief that alcohol, lead or other chemicals can cause genotypical changes.

The evidence on the inheritance of cancer is as yet quite limited. Malignant pigmented tumor in Drosophila has been traced by genetic analysis to single autosomal or sex-linked recessive genes. A certain strain of Arabian horses has a dominant gene for gray coloration and turns gray with age, at which time pigmented spindle cell sarcomas develop around the openings of the body, under the scapula, and in the axillary glands. In the light of cancer investigations, tumor formation seems to be a function of two sets of influences, local irritation and genetic susceptibility. The pathologic history of identical twins supports the idea of a hereditary susceptibility.

Genetics is related to human affairs, but Dr. Mohr is far from supporting the claim of eugenic reformers. His chapter on this theme should be widely read. His conclusions briefly and categorically stated are that, though not always accepted, inbreeding or intermarriage, as such, has no harmful effects at all. Such effects arise only when the genes are bad and tend to be expressed whenever a child gets a double dose from seemingly normal parents each conveying the undesirable gene as a recessive. Inbreeding as such is not the cause of degeneration of families or races. Disappearance of the family name does not eliminate descent of family traits through female lines. Race crossing as a cause of degeneration is deprecated with emphasis because of political use of genetic ideas, especially in Germany. The author has no Nordic illusions; from the standpoint of a pure bred dog we are all curs. He is even more disdainful of "blue blood" and the significance of eminent ancestors, treating this aspect of human heredity with the same fine scorn with which he attacks maternal impressions, rationalized human breeding, and sterilization. This attitude is in sharp contrast with his insistence on the hereditary aspects of pathologic states of the human body. There is no reference in these connections to the significance of Galton's studies on human genius. As a matter of fact the doctor seems to be quite like most men when he descends from the relations of heredity to disease to its relations to the fields of social and political action.

Radiologie de la vésicule biliaire: Etude anatomique, fonctionnelle et clinique. Par Nemours-Auguste, radiologiste de l'Hospice Paul Brousse. Préface du Professeur Roussy. Paper. Price, 45 francs. Pp. 186, with 129 illustrations. Paris: Masson & Cie, 1934.

The clinician, the surgeon and the radiologist all place a different value on the merits of cholecystography. Without making any comparisons, the author of this work has attempted to explain the lack of agreement between the clinician and the radiologist in the diagnosis of diseases of the gallbladder. Less than the usual number of halftone reproductions of cholecystograms appear in the work, but there are numerous diagrams sketched from x-ray films, which serve well the purposes of illustration. After an excellent historical review of the rôle of roentgen examinations in gallbladder diagnosis, the author enters into a full description of the radiologic anatomy of the biliary tract, including an interesting study of the extrahepatic biliary ducts and their variations. A lengthy discussion concerns the known functions of the gallbladder in relation to the cholecystographic observations. Technical considerations are fully elaborated, as well as the normal and pathologic aspects of the visualized gallbladder. Final chapters deal with the unusual lesions, such as cancer and other tumors of the gallbladder, and the indirect radiologic signs of gallbladder disease.

Aids to Operative Surgery. By Cecil P. G. Wakeley, D.Sc., F.R.C.S., F.R.S., Senior Surgeon, King's College Hospital, London. Second edition. Cloth. Price, $1.25. Pp. 225, with 3 illustrations. London: Baillière, Tindall & Cox; Baltimore: William Wood & Co., 1934.

It is more than a decade since the first edition of this little book was written by Mr. H. C. Orrin. During that time many innovations have developed in the field of surgery. The present author has practically rewritten the work, rearranged the chapters in conformity with the accepted chronological order of subject matter presentation, and has added some illustrations. Mr. T. Keith Lyle has assisted in the reconstruction of this valuable "aid," which in view of the rapid revision in the practice of surgery will find a useful place in the working library of younger and less experienced surgeons.

Lehrbuch der Differentialdiagnose innerer Krankheiten. Von Professor Dr. M. Matthes. Fortgeführt von Professor Dr. Hans Curschmann, Direktor der medizinischen Universtitätsklinik in Rostock i. M. Seventh edition. Paper. Price, 28 marks. Pp. 804, with 126 illustrations. Berlin: Julius Springer, 1934.

This volume, which has established itself as a classic, constitutes one of the best works on differential diagnosis of internal diseases in any language. The book, originally written by Matthes, has been completely revised by Curschmann, who has omitted obsolete and added new material. The discussion is so thorough and complete, including symptomatology in addition to the differential diagnosis in the strict sense of the word, that the book can be considered a real cyclopedia in this field. It is written in a fluent style and the text generously illustrated with numerous temperature charts, schematic drawings, and excellent reproductions of roentgenograms and electrocardiograms. Bibliographic references are confined chiefly to the German literature. The symptoms under discussion are specified in the margin, thus facilitating a rapid survey of the subject. Several omissions have been noticed: tularemia, undulant fever, and the occurrence of a postprandial attack as characteristic for acute pancreatic necrosis. The description of allergic conditions is rather inadequate. A statement that only seventy extracts are available for skin tests is obsolete. All in all, as a reference book this work is unsurpassed; it may be considered as one of the most valuable contributions to the German medical literature in recent years.

Facts and Theories of Psychoanalysis. By Ives Hendrick, M.D. Cloth. Price, $3. Pp. 308. New York: Alfred A. Knopf, 1934.

Although it is probable that psychoanalysis as a technic has come to stay, there still remain many questions about justifying the theories behind it. There are dissensions between members of the analytic and nonanalytic groups of psychiatrists and even some differences of interpretation and opinions among the freudian psychoanalysts themselves. Nevertheless, when those who have a proper background discuss psychoanalysis, they usually agree on the fundamentals. Much of the dissension has arisen from the lack of a good book on the basic theories and beliefs that are held by properly qualified psychoanalysts. The present volume is a compendium of psychoanalytic theories. There is little in it that is controversial and its facts are largely those presented by Freud himself rather than the products of some of his more bizarre disciples. The first part of the book presents the history of freudian psychology and the meaning of psychosexuality; the second part treats of the theories of psychoanalysis in which principles such as pleasure and reality are discussed. Aggressive behavior toward parents is included here. Thirdly, there is a clear outline of psychoanalytic therapy, such associated phenomena as transference, also a discussion of treatment methods and the types of patients that are suitable for such treatment. The results of analysis are chiefly set forth, possibly with a little tendency to overvaluate some of them. The only part of the volume subject to criticism, and that only mild, is the fourth part, in which the author's view seems to be too rosy about the place of psychoanalysis and a little too condemnatory to other schools of psychotherapy. This work should be an excellent basic book for any one who wishes to understand psychoanalysis as it is presented today. It should supersede most of the older books devoted to the presentation of psychoanalysis for the beginner.

Anatomie der Hörrinde als Grundlage des physiologischen und pathologischen Geschehens der Gehörswahrnehmung. Von Professor Dr. Max de Crinis, Direktor der Psychiatrischen und Nervenklinik an der Universität Köln. Paper. Price, 6.60 marks. Pp. 44, with 22 illustrations. Berlin: Julius Springer, 1934.

In this excellent and concise monograph the author reviews the fundamental works of Heschl, Wernicke, Flechsig, Brodman, Economo, Cajal and others in conjunction with his own histologic studies, in which a special silver impregnation method was used. He charts the various fields described by different authors and presents slides demonstrating variations in architectonic structure peculiar to these fields. With this foundation the author proceeds to a consideration of the physiology of the hearing centers, discussing the conclusions of his predecessors in the light of animal experiments and postmortem observations in cases of trauma, tumor and destruction of the peripheral end organs. The relationship between tone and noise perception, the musical sense and similar topics, are considered together with the psychic interpretation and certain analogies drawn between hearing and vision and the other senses. Stress is laid on the similarity between the Cajal acoustic cells found in the temporal lobe and those of the spiral ganglion. He points out that, when degeneration takes place in the ganglion cells, the Cajal and Körner cells in the brain are found to be the earliest and most markedly involved. As to Hensche's teachings regarding the rôle of the transverse convolution and its overlying cortical convolutions, the author is not in complete agreement.

Human Values in Psychological Medicine. By C. P. Blacker, M.C., M.A., M.D. Cloth. Price, $2.50. Pp. 179. New York & London: Oxford University Press, 1933.

This volume is an unusual one to find in a medical collection. While its title would indicate that it treats of psychiatric matters, it is necessary to wait until one reaches the last three of the ten chapters before anything distinctly psychiatric is obtained. By use of quotations from philosophic, biologic and psychoanalytic literature, taking matters from miscellaneous sources without a great deal of self criticism, the author has derived a theory which postulates that human capacity and human reactions are largely based on the values which the biologic entity places on life. These values may be distinct from what are called facts yet serve a biologic purpose. They are often esthetic in nature. Case histories and experiments have no place in the presentation, but the author can justify the fact that he applies his theory to psychologic medicine by pointing out that it is the presence of abnormal values which makes the patient seem abnormal. He also links up his theory with Freud's theory of life and death instincts, but he shows that in some respects his attitude toward such fundamental phenomena is different from those of Freud. He apologizes for not having an adequate philosophical background—and this he should do because the book is not a definite application of any clear-cut philosophical doctrine. He also expresses a debt of gratitude to Freud, which seems to have no relation to his theory as he expresses it. The chief value of this book lies in the fact that it may be food for thought for those who can plow through it. As a source or textbook for the busy psychiatric clinician, it would seem to have no value.

Medizinische Praxis: Sammlung für ärztliche Fortbildung. Herausgegeben von Prof. Dr. L. R. Grote, leitender Arzt der medizinischen Klinik des Staatlichen Krankenstiftes Zwickau, Prof. Dr. A. Fromme, Direktor der chirurgischen Abteilung des Stadtkrankenhauses Dresden-Friedrichstadt, und Prof. Dr. K. Warnekros, Direktor der staatlichen Frauenklinik zu Dresden. Band XVIII: Erbpathologie: Ein Lehrbuch für Ärzte. Von Dr. Otmar frhr. v. Verschuer, a. o. Professor der Universität Berlin. Paper. Price, 8 marks. Pp. 213, with 32 illustrations. Dresden & Leipzig: Theodor Steinkopff, 1934.

This monograph is intended for the instruction of physicians, especially in Germany, in matters relating to the heredity of disease. It deals mainly with the fundamental general principles of heredity, with the influence of heredity especially in human diseases, and with the practical application of the knowledge of heredity in medical practice and in public health, with particular reference to the conditions in Germany at the present time.

Early Forerunners of Man: A Morphological Study of the Evolutionary Origin of the Primates. By W. E. Le Gros Clark, D.Sc., F.R.C.S., Professor Elect of Anatomy, University of Oxford. Cloth. Price, $5. Pp. 296, with 89 illustrations. Baltimore: William Wood & Company, 1934.

The author has been for many years a careful student of comparative anatomy, especially interested in the nervous system and the skull. The student of comparative anatomy sees spread out before him a picture of progressive evolution. That picture is presented in this book as the author follows evolution from the basal mammalian stock in the Jurassic period up through the higher mammals and the primates to man. In successive chapters he shows parts of the evolutionary picture as presented by skulls, teeth, limbs, brains, special senses, the digestive system and the reproductive system. Of all these the most important part is the brain. Since it is the dominant part of animal structure, the study of its evolution throws the most reliable and significant light on human origins. Professor Clark believes that his study reveals the working of the principle of orthogenesis, early and somewhat intemperately championed by Theodore Eimer, according to which variations are definitely, progressively and irreversibly directed along certain lines. Whitman and others found in their work facts that forced them to accept this principle. The author finds it

"increasingly difficult to conceive of evolution as a matter of action and reaction between the physicochemical factors of the environment and those of a passive . . . organism." The many instances of obvious parallelism in the evolution of primates can be interpreted only by the conception of predetermined trends of development, operating independently of natural selection. "But if the mysteries of the living and evolving germplasm are even deeper and more enigmatical than we have been inclined to believe, it were better to recognize the fact." The book is a valuable contribution to the study of evolution and of human origin. Thoughtful biologists and philosophers cannot fail to consider seriously the facts presented.

Medicolegal

Autopsies: Liability of Charitable Hospital for Unauthorized Autopsy.—The plaintiff's husband died in the defendant hospital, Dec. 5, 1929, at 8 p. m. The body was removed to the hospital morgue. The following morning at 9 o'clock an undertaker, procured by the plaintiff, called at the hospital for the body but was told by the hospital authorities that it was not then ready for delivery. He was compelled to wait until 2 o'clock in the afternoon before he obtained the body. It was later discovered that, without the consent of the plaintiff, an autopsy had been performed on the body in the hospital, the vital organs removed, and the space formerly occupied by them filled with cotton. The plaintiff sued the hospital, and the trial court, after reducing the amount of damages awarded by the jury, gave judgment for the plaintiff. Both the plaintiff and the defendant hospital appealed to the supreme court of New York, appellate division, second department.

The defendant hospital contended that since it was a charitable institution it was not liable unless the plaintiff proved that the hospital actively participated in the unlawful act and that no such proof was presented to the trial court. The defendant apparently relied on the case of *Hasselbach* v. *Mount Sinai Hospital,* 173 App. Div. 89, 159 N. Y. Supp. 376, wherein a widow sought damages for an unauthorized autopsy on the body of her deceased husband. The court in that case said:

> The question is, therefore, squarely presented whether or not the defendant owed an absolute duty to plaintiff to protect her husband's body against a post mortem autopsy by any person whomsoever, and to deliver said body to her in the same condition that it was immediately after death. The plaintiff insists the defendant was under such a duty. We do not so understand the law. Certainly no reported case has gone to this extent.
>
> It is well settled that in the absence of a contrary testamentary disposition, the right to the possession of the body of one who has died belongs to the surviving husband or wife or next of kin for the purposes of preservation and burial, and that this right is infringed upon by any one who unlawfully mutilates such a body without the consent of the person entitled to the possession thereof (*Darcy* v. *Presbyterian Hospital* [in City of New York], 202 N. Y. 259 [95 N. E. 695, Ann. Cas. 1912D, 1238]; *Foley* v. *Phelps,* 1 App. Div. 551 [37 N. Y. S. 471]; *Larson* v. *Chase,* 47 Minn. 307 [50 N. W. 238, 14 L. R. A. 85, 28 Am. St. Rep. 370]), and for a violation of this right damages may be recovered for the injury to the feelings and the mental sufferings resulting from the unlawful act. In all the cases, however, in which such a right of action has been upheld the person held liable has either been the one who committed the unlawful act, as in *Foley* v. *Phelps,* or one who caused or procured the autopsy to be made, as in *Darcy* v. *Presbyterian Hospital.* None of them, therefore, are authority for the proposition contended for by the plaintiff in this action.

The plaintiff in the Hasselbach case, observed the court, failed to allege in her complaint that the autopsy was performed by the defendant hospital, or by any of its servants, or by its consent, knowledge, privity or procurement. In the case under consideration, however, the plaintiff, in substance, alleged in her complaint that the unlawful act was committed by the defendant, its agents or employees while the defendant had the exclusive and absolute possession and control of the body. The Hasselbach case is therefore not in point, the court pointed out.

Another case cited by the defendant hospital, *Phillips* v. *Buffalo General Hospital,* 239 N. Y. 188, 146 N. E. 199, involved an injury to a patient through the alleged negligence of an orderly, engaged in nursing. In the present case the plaintiff was not a patient of the hospital, said the court, and her action was based not on mere negligence but on a separate and independent tort, namely, the unauthorized mutilation of her deceased husband's body. The reasons that have led to the adoption of the rule that a charitable institution is immune from liability to patients because of the wrongful act of its servants are not applicable when the sufferer is not a patient. The plaintiff in this case charged that the defendant hospital had interfered with her right to receive her deceased husband's body whole and unmutilated. Testimony that the body was mutilated and its vital organs missing at the time the undertaker received it at the hospital was uncontradicted. The defendant hospital placed in evidence its rule that autopsies were performed at the hospital only with the written consent of the family of the deceased, and then only by the pathologist. The pathologist testified that he did not perform the autopsy or direct it to be performed. Each member of the staff denied that he had performed the autopsy.

In the opinion of the Supreme Court, a hospital should not be held as an insurer of the safety of a dead body in its possession, nor should it be held liable because of the mutilation of a body in its possession by any person or from any cause whatsoever. The evidence in this case clearly showed that the body was mutilated while in the exclusive possession and control of the hospital. The plaintiff, of course, said the court, could furnish no proof as to who did the unlawful act. The defendant hospital disclaimed all knowledge of this particular autopsy and called attention to its rules concerning the performance of autopsies. These rules, however, were not observed or in force in this instance, and might have been nonexistent so far as the plaintiff was concerned. The defendant, which should have knowledge of all the facts, did not show that some person pursuing an independent calling and not acting under the authority or direction of the hospital performed the autopsy. The defendant alone knew what transpired within its walls during the night and morning following the death of the plaintiff's husband. A hospital has the means to exercise control over what goes on within its building. Requiring it to take some precaution to prevent the unlawful mutilation of deceased patients, said the court, is not placing an undue burden on it, and it should not be allowed to avoid all liability by professing ignorance of what has happened within its own confines. In view of all the facts, it was possible, concluded the court, for the jury by reasonable inferences to find that this unlawful autopsy was performed by the direction or with the consent, knowledge or permission of the defendant hospital. The judgment in favor of the plaintiff was consequently affirmed.—*Grawunder v. Beth Israel Hospital Ass'n. (N. Y.), 272 N. Y. S. 171.*

Society Proceedings

COMING MEETINGS

Alabama, Medical Association of the State of, Mobile, April 16-18. Dr. D. L. Cannon, 519 Dexter Avenue, Montgomery, Secretary.

American Association of Anatomists, St. Louis, April 18-20. Dr. George W. Corner, University of Rochester School of Medicine, Rochester, N. Y., Secretary.

American Association of Pathologists and Bacteriologists, New York, April 18-19. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland, Secretary.

American Association on Mental Deficiency, Chicago, April 25-27. Dr. Groves B. Smith, Beverly Farms, Godfrey, Ill., Secretary.

American Physiological Society, Detroit, April 10-13. Dr. Frank C. Mann, Mayo Clinic, Rochester, Minn., Secretary.

American Society for Experimental Pathology, Detroit, April 10-13. Dr. Shields Warren, 195 Pilgrim Road, Boston, Secretary.

American Society for Pharmacology and Experimental Therapeutics, Detroit, April 10-13. Dr. E. M. K. Geiling, 710 N. Washington Street, Baltimore, Secretary.

American Society of Biological Chemistry, Detroit, April 10-13. Dr. H. A. Mattill, State University of Iowa, Iowa City, Secretary.

Arizona State Medical Association, Phoenix, April 25-27. Dr. D. F. Harbridge, 15 East Monroe Street, Phoenix, Secretary.

Arkansas Medical Society, Fort Smith, April 15-17. Dr. W. R. Brooksher, 602 Garrison Avenue, Fort Smith, Secretary.

Federation of American Societies for Experimental Biology, Detroit, April 10-13. Dr. H. A. Mattill, State University of Iowa, Iowa City, Secretary.

Maryland, Medical and Chirurgical Faculty of, Baltimore, April 23-24. Dr. Walter Dent Wise, 1211 Cathedral Street, Baltimore, Secretary.

South Carolina Medical Association, Florence, April 23-25. Dr. E. A. Hines, Seneca, Secretary.

Southeastern Surgical Congress, Jacksonville, Fla., March 11-13. Dr. Benjamin T. Beasley, 478 Peachtree Street, N.E., Atlanta, Ga., Secretary.

Tennessee State Medical Association, Nashville, April 9-11. Dr. H. H. Shoulders, 706 Church Street, Nashville, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Periodicals are available from 1925 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Alabama Medical Association Journal, Montgomery

4: 197-236 (Dec.) 1934

Massive Atelectasis in Relation to Lobar Pneumonia. G. Walsh, Fairfield.—p. 197.

*Craniocerebral Injuries and Complications. W. S. Littlejohn, Birmingham.—p. 210.

Surgical Treatment of Diseases of Biliary Tract. R. V. Taylor Jr., Mobile.—p. 216.

Congenital Polycystic Kidneys. C. Thorington, Montgomery.—p. 218.

Craniocerebral Injuries and Complications.—Littlejohn points out that cranial trauma is rapidly on the increase and that probably 15 per cent of the admissions to city hospitals present injuries of the head. Most of these show involvement of the nervous system. Loss of consciousness, for a few minutes or longer, occurs in probably 95 per cent of the cases of fractured skull. Treatment should be directed primarily toward relief of increased intracranial pressure. These patients should be put to bed immediately, and, if there is coma for any appreciable length of time, they should remain in bed for six weeks or longer. Conservative treatment of simple, uncomplicated skull fractures is indicated. Examination should be made for hemorrhage or leakage of cerebrospinal fluid from any of the cranial orifices. Careful neurologic examination for cranial nerve paralysis or paralysis of the extremities is essential. Unless there is a compound fracture, diagnostic spinal puncture should be done. Hypertonic solution of dextrose, given intravenously, is most valuable in reducing the intracranial pressure. Morphine is liable to obscure important diagnostic signs and in addition raises the intracranial pressure. Intracranial hemorrhage must be guardedly anticipated and cannot always be shown by spinal puncture. Immediate débridement is imperative in compound fractures. Hemorrhage may complicate severe concussion, obscuring the diagnosis. Posttraumatic epilepsy must always be anticipated. Posttraumatic sequels are the rule rather than the exception following injuries of the head. Sequels persisting more than eighteen months are probably permanent. Many of the sequels may be forestalled. The conclusions and suggestions that the author sets forth have resulted from the observations of 1,000 patients seen with major craniocerebral injuries over a period of seven years.

American Journal of Ophthalmology, St. Louis

17: 1099-1194 (Dec.) 1934

Physiologic Considerations in Treatment of Pulsating Exophthalmos. G. M. Dorrance and P. E. Loudenslager, Philadelphia.—p. 1099.

Experimental Detachment of Retina: Permanent Detachments Produced in Rabbits' Eyes. R. Castroviejo, New York.—p. 1112.

Lens Extraction in Myopia. A. Elschnig, Marienbad, Czechoslovakia.—p. 1118.

Diathermy in Retinal Detachment: Report of Case with Severe Nystagmus as Complication. M. H. Post, St. Louis.—p. 1122.

*Histopathology of Coloboma of Choroid and Optic Nerve Entrance. M. L. Folk, Chicago.—p. 1126.

Studies in Protein Content of Human Aqueous: I. Influence of Therapeutic Measures: II. Significance in Papilledema, Papillitis and Other Conditions. E. Selinger, Chicago.—p. 1130.

Retinitis Proliferans in Diabetes: Case Report. G. C. Struble, St. Louis.—p. 1137.

Xanthomatosis of the Orbit (Lipogranuloma). R. M. Rogers, Brooklyn.—p. 1141.

Malnutrition in Relation to Ulceration of Cornea in Gonorrheal Ophthalmia Neonatorum. C. E. Walker Jr., Boston.—p. 1146.

Testing of Visual Acuity: III. Types of Test Field and Projection Apparatus. C. E. Ferree and G. Rand, Baltimore.—p. 1147.

Histopathology of Coloboma of Choroid.—Folk reports the microscopic study of a coloboma of the choroid. In this specimen, no inflammatory products or mesodermal strands were found in the region of the coloboma. Retinal folds seemed to be the cause of the formation of the latter, thus supporting the ectodermal theory of coloboma formation. The defect at the disk was not in the optic nerve or its sheath but at its entrance. The choroid and pigment epithelium were absent; the retina was in a state of maldevelopment but showed no fatal gap.

American Journal of Surgery, New York

27: 1-186 (Jan.) 1935

Treatment of Primary Malignant Bone Tumors: The Memorial Hospital Conference on Treatment of Bone Sarcoma. E. A. Codman, Boston.—p. 3.

Endothelial Myeloma or Ewing's Sarcoma. W. B. Coley, New York.—p. 7.

Primary Malignant Bone Tumors: Differential Diagnosis: Its Importance in Selection of Treatment. C. C. Simmons, Boston.—p. 19.

*Place of Biopsy in Bone Sarcoma. J. Ewing, New York.—p. 26.

Surgical Treatment of Osteogenic Sarcoma. H. W. Meyerding, Rochester, Minn.—p. 29.

*Value of Preoperative Irradiation in Bone Tumors Whether for Biopsy or Any Type of Operative Procedure Including Amputation. J. C. Bloodgood, Baltimore.—p. 35.

*Treatment of Osteogenic Sarcoma by Irradiation. B. L. Coley, New York.—p. 43.

Five Year Curse of Osteogenic Sarcoma and of Ewing's Sarcoma: Accepted by the Registry of Bone Sarcoma. B. C. Crowell, Chicago.—p. 48.

Carcinoma of Bronchus, Suppurative Pneumonitis and Bronchiectasis, Interlobar Empyema. H. Lilienthal, New York.—p. 50.

Intrathoracic Tumors. C. Eggers, New York.—p. 52.

Persistent Infected Pneumothorax Following Aspiration Treatment of Pleural Suppuration. A. S. W. Touroff, New York.—p. 57.

Surgical Treatment of Pleuropulmonary Adhesions in One Hundred Thoracoscopies. G. L. Stivers, Fall River, Mass.—p. 59.

Catgut Allergy, with Note on Use of Alloy Steel Wire for Sutures and Ligatures. W. W. Babcock, Philadelphia.—p. 67.

Results of Treatment in Tumors of Testicle. A. U. Desjardins, V. S. Counseller, Rochester, Minn., and C. Gianturco, Urbana, Ill.—p. 71.

*Twisted Ovarian Cyst: Procedure to Prevent Fatality from Embolism. C. L. Davidson, Jamaica, N. Y.—p. 79.

Ectopic Pregnancy. P. T. Brown, Phoenix, Ariz.—p. 80.

Anticipating Some Difficulties During Transfusion of Unmodified Blood. M. DeBakey, New Orleans.—p. 85.

Adrenal Cortical Hyperfunction. M. Goldzieher and H. Koster, Brooklyn.—p. 93.

Spinal Anesthesia in Treatment of Megacolon and Obstinate Constipation. S. J. Stabins, J. J. Morton and W. J. M. Scott, Rochester, N. Y.—p. 107.

Prevention of Late Postoperative Complications in Acute Suppurative Appendicitis: Three Case Reports. J. J. McGrath and S. Eiss, New York.—p. 112.

Primary Carcinoma of Jejunum. M. E. Gabor and R. I. Hiller, Milwaukee.—p. 121.

Anomalies of Intestine: New Operative Approach. W. W. Sager and O. Solnitzky, Washington, D. C.—p. 126.

Acute Gallbladder Disease. C. R. Steinke, Akron, Ohio.—p. 135.

Modern Treatment of Duodenal Fistula. D. Warshaw, New York.—p. 139.

Permanent Extirpation of Nails in Chronic Onychomycosis. K. P. A. Taylor, Havana, Cuba.—p. 145.

Biopsy in Bone Sarcoma.—Ewing offers the following considerations in support of the fact that biopsy should be the last step in the diagnosis of bone sarcoma. 1. The clinical history and the roentgen observations, in experienced hands, yield a practically certain diagnosis in the great majority of cases. When the clinician forms the habit of relying on a hasty biopsy he invariably forms the habit of a hasty review of the clinical and roentgen evidence, and thus a vicious circle is established and the actual need of a biopsy tends to increase. 2. The whole clinical and roentgen picture of the case of bone sarcoma usually furnishes a better conception of the diagnostic and therapeutic problem than can be obtained from a biopsy. The pathologist works under a great handicap when he undertakes to make clinical diagnoses and advise treatment without full knowledge of the clinical and roentgenologic data. 3. Few surgeons realize the limitations in the histologic diagnosis of bone tumors and the conditions that simulate or accompany them. The sources of error are numerous. 4. Numerous unexpected complications arise from biopsies on bone tumors, and, while the individual surgeon may claim that he has not encountered them very often, the total damage done forms a serious objection to the biopsy. There may be uncontrollable hemorrhage requiring immediate amputation or a more serious emergency measure than the simple biopsy. Infection may follow, either low grade and chronic or acute and serious. In any such case, treatment by any other than surgical measures

is generally precluded. The biopsy interferes with proper radiation treatment. 5. Bone sarcomas are allowed to run along in the hands of all types of practitioners until the disease becomes so obvious that no further delay can be tolerated and resort is finally had to the roentgenograph and then to the biopsy. So long as this attitude prevails, there will be few cures of these diseases. When the disease reaches the biopsy stage it is often disseminated in the neighboring veins or already in the lungs. When the condition is readily recognized in the roentgenogram also it is often disseminated. Unless the policy of suspecting bone sarcoma on clinical signs is adopted, the chief of which is persistent pain, worse at night, the melancholy history of this disease will be indefinitely perpetuated. 6. An aspiration biopsy by an 18 bore needle has been remarkably successful in revealing the structure of bone tumors. Most objections to the surgical biopsy are avoided. When this method becomes a familiar routine, there remains a restricted field for the old surgical biopsy.

Preoperative Irradiation in Bone Tumors.—Bloodgood gives a brief review of the evidence that justifies giving every suggestive lesion of bone, even before biopsy, a course of irradiation and a thorough course, with high voltage x-rays, or a 4 Gm. pack, or larger amounts of emanations in packs. The majority of pathologists, radiotherapists and operators favor and practice this preliminary preoperative and prebiopsy irradiation. It should not be carried too far, at least before biopsy. If distinct improvement does not occur after the first thorough course of treatment, the tumor should be explored or aspiration biopsy performed (for microscopic section). If there is any doubt about the nature of the lesion, sections should be submitted to a number of pathologists of great experience in the study of bone tumors. The case should be registered with the American College of Surgeons. During this time, from one week to one month, the second course of irradiation may be given or there should be a period after the first irradiation of at least two weeks in which no operation, except biopsy, should be done. So, if there is no improvement after the first irradiation, there can be a biopsy immediately, and one will have at least two weeks to get the pathologic view.

Irradiation of Osteogenic Sarcoma.—Coley states that of seventy patients with osteogenic sarcoma treated by irradiation sixty-four are dead. Of the six patients known to be alive, four have fibrosarcomas and one a sarcoma developing on an old osteitis fibrosa cystica, and the remaining case is by roentgenographic appearance a sclerosing osteogenic sarcoma but lacks histologic confirmation. Of the six patients, only one has survived more than five years. At present the author feels that irradiation should be offered in preference to amputation only: (1) when of doubtful operability, (2) when the histologic picture suggests definite radiosensitivity, (3) when a small periosteal lesion affords opportunity for combined external and interstitial irradiation, and (4) in medullary osteogenic fibrosarcomas of low malignancy. All inoperable cases and those in which amputation is refused should receive thorough, well planned irradiation. If improvement is noted, it should be an indication for further use of irradiation up to the limits of skin tolerance. At present prolonged treatment by the fractional dose method is favored by the author. With few exceptions his results in the treatment of pulmonary metastases have not been encouraging.

Procedure in Twisted Ovarian Cyst.—Davidson believes that the following procedure will tend to prevent a fatal termination in twisted ovarian cysts from cerebral embolism: The abdomen is opened and explored. The patient is placed in a Trendelenburg position. The cyst is delivered. There may be one or more twists in the pedicle. It may or may not show stagnation of blood, discoloration or even necrosis. The cyst should not be untwisted. The cyst is held in one hand and with the other a Kelly hemostat is placed well below the last twist on the broad ligament. This should be beyond any discoloration or hemorrhagic areas in the pedicle. A suture ligature is placed in the broad ligament beneath the hemostat. The untwisting of the cyst before amputation allows its material to get into the circulation and cause embolism. The cyst is amputated between hemostat and suture ligature and repaired as usual. The abdomen is closed in layers.

American Review of Tuberculosis, New York

31: 1-120 (Jan.) 1935

*Amyloid Degeneration of Adrenals as Factor in Producing Symptoms of Addison's Disease in Chronic Pulmonary Tuberculosis. I. D. Bronfin and P. H. Guttman, Denver.—p. 1.
Pulmonary Asbestosis: Report of Case with Necropsy Findings. D. S. Egbert, New Haven, Conn.—p. 25.
Vitamin Therapy in Intestinal Tuberculosis. M. M. Steinbach and M. B. Rosenblatt, New York.—p. 35.
Bronchial Obstruction as Complication of Pulmonary Tuberculosis Under Artificial Pneumothorax: Case Report. W. I. Werner, Pontiac, Mich.—p. 44.
Pregnancy Following Extrapleural Thoracoplasty: Case Report. H. S. Boquist, J. H. Simons and J. A. Myers, Minneapolis.—p. 48.
*Double Exposure Roentgenologic Chest Technic. H. L. Sampson, Trudeau, N. Y.—p. 50.
*Complement Fixation as Related to Resistance and Allergy in Experimental Tuberculosis. A. B. Baker, Minneapolis.—p. 54.
Follow-Up Information on Two Thousand and Thirty-One Tuberculous Patients One to Thirteen Years After Discharge from Sanatoriums. G. J. Wherrett, Fort San, Sask.—p. 62.
Statistic Study of Tuberculosis Clinics in Grays Harbor County, Washington. H. L. Hull, Yakima, Wash.—p. 74.
Survey of Artificial Pneumothorax in Representative American Tuberculosis Sanatoriums, 1915-1930, with Especial Attention to Question of Termination of Treatment and Later Results. A. Peters, Lake George, N. Y.; A. S. Pope, Boston; W. H. Morriss, Wallingford, Conn.; E. N. Packard, Saranac Lake, N. Y., and O. O. Miller, Louisville, Ky.—p. 85.

Amyloid Degeneration of Adrenals in Tuberculosis.—Bronfin and Guttman found eighteen cases of amyloid disease in a series of 100 tuberculous patients that came to necropsy. Of these, fourteen showed also amyloid infiltration of the adrenals, involving mainly the cortex. Clinically, they could be classified into three groups. In the "positive" group there were five patients in whom a diagnosis of Addison's disease was made during life. Of these, one patient was temporarily benefited by the administration of cortical extract and another by the Muirhead regimen. In the second group there were suggestive symptoms of Addison's disease but a diagnosis was not warranted, and the third group did not show any symptoms of Addison's disease during life. Histologic study of the adrenals in those cases seems to show a definite relationship between the extent of amyloid involvement of the adrenal cortex and the symptomatology, notably the asthenia and gastro-intestinal symptoms. Attention is called to the possibility that in many cases of far advanced pulmonary tuberculosis there are symptoms of Addison's disease which are usually unrecognized and attributed to the existing tuberculosis. The recognition of these symptoms should prove helpful not only by way of therapy when cortical extract becomes available commercially but also to prevent the institution of surgical procedures, which invariably hasten a fatal termination in such cases. In the light of this study, amyloid of the adrenals, which, as a rule, involves only the cortex, should be given a better recognized position in the etiology of Addison's disease.

Roentgen Technic for Double Exposure of Chest.—Sampson outlines a roentgen technic for double exposure of the chest in which one half of each film is covered with a sheet of lead of sufficient thickness to ensure protection. The unprotected side is then exposed to register the "good" lung. The protecting lead is then shifted to the half of the film that now has a registration of the "good" lung. The casets are then placed in either a horizontal or a vertical Potter-Bucky grid apparatus. To obtain proper perspective, the caset used with the tube in the high position for the good lung must be used again with the high tube position for the compressed lung. The exposure for the dense side will depend somewhat on how great the density is. For heavy densities a spine technic is used and for lighter densities the exposure is shortened. Because there is little or no movement on the "diseased" side, reasonably long exposures (approximately five seconds) do not appear to be objectionable. However, the shorter the exposure, the less danger there is from blurring caused by motion. A small focal-spot radiator type of Coolidge tube is used to compensate for the short focal spot film distance, which is to a great extent determined by the type of Potter-Bucky grid used. An average technic is: kilovolts variable, 10 milliamperes, distance of 30 inches and time of five seconds. The kilovolt is varied for different depths of chests. The perspective on the Potter-Bucky grid side of the film is usually satisfactory and one is able to evaluate the relative position

of pulmonary and thoracic structures. However, too much reliance should not be placed on it if further surgical procedure is contemplated, unless the surgeon and the roentgenologist can check the perspective by known anatomic landmarks. The author has not attempted to evaluate statistically the foregoing method. It has become a routine procedure when one side of the chest is dense and the opposite side is amenable to the usual chest technic.

Complement Fixation in Experimental Tuberculosis.—In his experimental work with tuberculosis, Baker observed that vaccinated rabbits can be definitely differentiated from the nonvaccinated controls by the aid of the complement fixation test. The antibody titer in vaccinated animals does not measure the existing allergy but does appear to parallel the resistance of the animals to experimentally produced tuberculosis. The humoral antibody produced by vaccination is not destroyed when it cannot be detected by the complement fixation test but leaves the circulation and can be exfoliated by various stimuli.

Archives of Neurology and Psychiatry, Chicago

33: 1-246 (Jan.) 1935

*Insulin Hypoglycemia: Mechanism of Neurologic Symptoms. W. Dameshek and A. Myerson, with technical assistance of Caroline Stephenson, Boston.—p. 1.
Treatment for Primary Myopathies. H. H. Reese, E. M. Burns and Carol M. Rice, Madison, Wis.—p. 19.
Vasomotor Changes Associated with Paralysis of Cerebral Origin. P. C. Bucy, Chicago.—p. 30.
Central Nervous System in Mushroom Poisoning: Report of Two Cases with Toxic Encephalitis. E. Marcovitz and B. J. Alpers, Philadelphia.—p. 53.
Cerebral Changes in Gastro-Intestinal Infections with Terminal Cachexia: Histopathologic Studies on Dysentery, with Comments on Similar Observations in Intestinal Tuberculosis. L. Alexander, Boston, and T. T. Wu, Shanghai, China.—p. 72.
*Changes in Cerebral Cortex Produced by Thermocoagulation: Suggestion to Neurosurgery. J. G. Dusser de Barenne and H. M. Zimmerman, New Haven, Conn.—p. 123.

Insulin Hypoglycemia.—Dameshek and Myerson studied the mechanism of the neurologic symptoms of insulin hypoglycemia in man, chiefly by comparing the contents of dextrose and oxygen in the vessels supplying the brain and the arm before and after the intravenous administration of insulin. The chemical changes in the blood usually varied directly with the severity of the reaction. The uptake of dextrose by the brain (as measured by the difference in the dextrose content of an artery and the internal jugular vein) became materially reduced during the severe hypoglycemic reaction, although that of the arm usually became increased. The uptake of oxygen by the brain (as determined by arteriovenous differences in the content of oxygen) varied indirectly with the severity of the insulin reaction, becoming much reduced during the most severe reactions. The blood lactic acid became increased during the reaction, no differences between vessels being noted. The spinal fluid pressure regularly became increased before the objective phenomena of the hypoglycemic reaction could be seen. There was no essential change in the dextrose content of the spinal fluid during the period of observation (from forty-five to ninety minutes). The pulse pressure usually became increased, owing to a slight rise in systolic pressure and to a more marked fall in diastolic pressure. An injection of epinephrine regularly diminished the symptoms of the insulin reaction. The marked diminution in the arteriovenous difference in the content of oxygen during the severe insulin reaction may signify actual diminution in the uptake of oxygen by the brain and arm. If this is true, the neurologic symptoms of the insulin reaction may be due to the effects of a lack of oxygen on brain tissue.

Changes in Cerebral Cortex Produced by Thermocoagulation.—Dusser de Barenne and Zimmerman discuss the changes in the cerebral cortex produced in monkeys by thermocoagulation through local application of heat at from 50 to 80 C. for short periods of time. The most suitable temperatures for laminar thermocoagulation of the cortex are from 65 to 80 C. The depth of the lesion depends on the temperature applied and the duration of the application. Following thermocoagulation at a temperature between 65 and 80 C., all the nerve cells have disappeared in the heated area after thirty-six hours. After from seven to twelve days the heated area appears as a devastated region, sharply delimited from the normal surrounding cortex by a wall of proliferated glia and fibroblasts. Inside the heated area the glia cells are still present and staining after twelve days. Application of lower, though still supernormal, temperatures to the cortex results in typical changes. Even the application of 50 C. for half a minute to the cortex results in the death of all the nerve cells in the heated area; they have disappeared after thirty-six hours. It is of interest that in the chronic preparations (survival period of four months) the whole devastated area has disappeared. Not only the nerve cells but also the neuroglia, the blood vessels, the interstitial tissue and the wall of proliferated glia and fibroblasts have disappeared. This fact proves that the glia present and staining in the "acute" preparations is no longer alive but also has been killed by the thermocoagulation. Scar formation and retraction of the adjacent cortex are absent in "chronic" preparations. This observation suggests the usefulness of this method in neurosurgical procedures on man.

Canadian Public Health Journal, Toronto

25: 563-606 (Dec.) 1934

Study of Maternal Deaths in Province of Ontario. J. T. Phair and A. H. Sellers, Toronto.—p. 563.
What the Dairyman Expects from Medical Officer of Health. W. H. Forster.—p. 580.
Prevention of Scarlet Fever in a Children's Hospital. Beverley Hannah, Toronto.—p. 587.
Recent Advances in Treatment of Cyanide Poisoning. O. M. Solandt, Toronto.—p. 592.

Illinois Medical Journal, Chicago

67: 1-100 (Jan.) 1935

Premature Infants: Report of Sixteen Hundred and Twenty-Three Consecutive Cases. J. H. Hess, Chicago.—p. 14.
The Lighter Vein in Medicine. E. J. Kuh, Chicago.—p. 25.
Cystic Disease of Lungs: Report of Eight Cases. E. F. Pearson, Springfield.—p. 28.
Sacrocoxalgia. J. E. Allegretti, Chicago.—p. 37.
Immediate Treatment of Compound Injuries. S. L. Koch, Chicago.—p. 40.
Spinal Anesthesia. W. L. Waner, Evanston.—p. 45.
Acute Intestinal Obstruction: Its Early Recognition. E. I. Greene and J. M. Greene, Chicago.—p. 51.
*Relation Between Preoperative Condition of Patient and Operative Mortality in Exophthalmic Goiter. W. O. Thompson, S. G. Taylor 3d and K. A. Meyer, Chicago.—p. 53.
Agranulocytosis. F. W. Burcky, Evanston.—p. 59.
Retinitis Pigmentosa. R. A. Perritt, Chicago.—p. 64.
*Modified Technic for Suspected Gallbladder Disease. A. Hartung and T. J. Wachowski, Chicago.—p. 71.
X-Rays and Health. H. A. Olin, Chicago.—p. 76.
Control of Undulant Fever from Standpoint of the Veterinarian. W. H. Welch, Lexington.—p. 78.
Studies in Tuberculous Meningitis, with Especial Reference to Racial Susceptibility. L. H. Berry, Chicago.—p. 82.
Morbidity and Mortality in Prostatic Surgery. C. O. Ritch, Chicago.—p. 90.
Surgical Drainage in Glaucoma. M. Goldenburg, Chicago.—p. 92.
Value of Friedman Modification of Aschheim-Zondek Test. J. J. Moore, Chicago.—p. 96.

Operative Mortality in Exophthalmic Goiter.—Thompson and his associates believe that, apart from surgical skill, the most important factor in determining the risk of thyroidectomy for exophthalmic goiter is the preoperative condition of the patient. Great attention should be paid not only to the administration of iodine but also to emotional instability, muscular weakness, rest, body weight and infection. The two most important factors in gaging the risk of operation, regardless of the height of the basal metabolism, would appear to be emotional instability and muscular weakness. When the two are marked in the same patient, an unfavorable outcome of the operation is common. Because of the beneficial effect exercised on the course of the disease by rest, patients should be prepared for operation in the hospital. In patients in whom the disease is refractory to iodine, roentgen treatment may be used to prepare the patient for operation, but this form of therapy should never be used in desperately ill patients because it produces a temporary increase in the severity of the disease. The treatments should not be given at intervals of less than one week and no improvement should be expected in most cases for a period of several weeks. A gain in body weight is a favorable sign; therefore the caloric intake in most cases must exceed the basal by at least 100 per cent. Following mild

infections of the upper respiratory tract, no operative procedures should be carried out for at least two weeks after the temperature is normal, and following severe infections of the upper respiratory tract for at least four weeks. The criteria for gaging the risk of operation are the same in patients who have cardiac irregularities as in those who do not. The time to prevent postoperative crises is in the preoperative period.

Diagnosis of Gallbladder Disease.—Hartung and Wachowski present a modified procedure for diagnosis in cases suggesting disease of the gallbladder. The procedure in sixty-three cases was as follows: In most of these cases the dye was administered orally and the patients were first seen by the authors after its administration. Fourteen hours after the oral or six hours after the intravenous administration of the dye, roentgenograms were made and developed immediately. If they were satisfactory and showed a good outline of the gallbladder of approximately normal density, the patient was given a meal consisting of egg yolks and cream. Otherwise additional roentgenograms were made after an interval before the fat meal was administered. One hour after the fat meal, roentgenograms were made to show contraction or other observations that might be of value. An opaque meal was then given under fluoroscopic control and special attention was paid to possible secondary signs. Subsequent examinations were made in individual cases in which additional information might be obtained thereby. A written report was then incorporated with the history of the patient and, if the patient came to operation, this was compared with the surgeon's observations. No attempt was made to ascertain the exact nature of the pathologic condition present when a pathologic gallbladder was reported. Special stress was placed on adhesions or other changes that might explain the roentgen signs observed. Of these, evidences of abnormal fixation, gallbladder "seats" and functional disturbances were recorded, although note was made if other abnormalities were present. Correct diagnoses were arrived at in more than 96 per cent of the cases. In forty-two of them the same conclusions may have been reached from the cholecystographic examination alone. In the other twenty-one, secondary signs elicited from the opaque meal examination prevented errors in diagnosis in almost half of them, which would have been made if the observations obtained from the dye test had been the sole criteria.

Iowa State Medical Society Journal, Des Moines

25: 1-58 (Jan.) 1935

Conjunctivitis in the New-Born. C. W. Rutherford, Iowa City.—p. 7.
Erythroblastic Anemia. D. H. Kelly and L. F. Hills, Des Moines.—p. 9.
Pulmonary Atelectasis in the New-Born. R. I. Theisen, Dubuque.—p. 14.
Fractures in Region of Wrist in Childhood, Puberty and Adolescence. C. L. Gillies, Iowa City.—p. 15.
Skin Infections in the New-Born. J. Dunn, Davenport.—p. 17.
Child Nature and the Child's Emotional Needs. Martha M. Link, Dubuque.—p. 19.
Respiratory Infections in the New-Born. C. A. Waterbury, Waterloo.—p. 21.
Encephalitis and Meningitis in the New-Born. H. E. Farnsworth, Storm Lake.—p. 23.
Sepsis in the New-Born. J. M. Hayek, Cedar Rapids.—p. 27.

Johns Hopkins Hospital Bulletin, Baltimore

55: 361-440 (Dec.) 1934

*Primary Tumor of Ureter: New Method for Complete Nephro-Ureterectomy. J. A. C. Colston, Baltimore.—p. 361.
Sudden Death. L. Hamman, Baltimore.—p. 387.
Glomerular Changes in Nephritis. W. G. MacCallum, Baltimore.—p. 416.

Unusual Case of Primary Tumor of Ureter.—Colston reports a case of primary papillary epithelioma of the ureter, with the complication of implantation in a probably preexisting bladder diverticulum. The treatment consisted of nephrectomy, followed by complete ureterectomy nine months later when the correct diagnosis was made. Six months after the second operation, the diverticulum containing the tumor implant was removed. The correct diagnosis was not made until persistent bleeding from the ureter was discovered by cystoscopic examination and the ureterogram presented a typical picture. That complete nephro-ureterectomy is the method of choice and should be employed for all patients whose condition will permit this operation is the conclusion of all observers. The inadequacy of many methods of so-called complete nephro-ureterectomy is emphasized, since the mucous membrane of the distal stump of the ureter is not removed or destroyed. The extreme importance of complete eradication or destruction of the entire ureteral mucous membrane, especially the portion in the intramural part of the ureter where tumor implantation has been shown to occur, is emphasized. A method of complete ureteronephrectomy, combining the previously well known steps but adding the heretofore unreported technic by which the mucous membrane of the distal stump of the ureter throughout its whole course through the bladder wall is completely destroyed with the high frequency current, is reported.

Journal of General Physiology, New York

18: 283-432 (Jan. 20) 1935. Partial Index

Sulfhydryl and Disulphide Groups of Proteins: I. Methods of Estimation. A. E. Mirsky and M. L. Anson, New York.—p. 307.
Products of Oxidation of Thiosulphate by Bacteria in Mineral Mediums. R. L. Starkey, New Brunswick, N. J.—p. 325.
Some Temperature Characteristics in Man. H. Hoagland and C. T. Perkins, Worcester, Mass.—p. 399.
Spreading of Pepsin and of Trypsin. E. Gorter, Haarlem, Holland.—p. 421.

Journal of Pharmacology & Exper. Therap., Baltimore

52: 355-506 (Dec.) 1934

Pharmacology of Acetylene Dibromide (s-Dibromo-Ethylene). A. W. Downs and D. R. Climenko, Edmonton, Alta.—p. 355.
Action of Drugs on Chronic Decorticated Preparation. F. A. Mettler and E. Culler, Urbana, Ill.—p. 366.
Hormones in Cancer: IX. Resistance Factor in Normal Urine Affecting Carcinoma 256. F. Bischoff and L. C. Maxwell, Santa Barbara, Calif.—p. 378.
Studies on Denervated Kidney: II. Action of Sodium Salicylate on Uric Acid, Allantoin, Sodium Chloride and Total Nitrogen Excretion in Dogs. M. G. Gray and G. P. Grabfield, Boston.—p. 383.
Studies on Effects of Intravenous Injections of Colloids: I. Deposition of Acacia in Liver and Other Organs and Its Excretion in Urine and Bile. Marie Andersch and R. B. Gibson, Iowa City.—p. 390.
*Effect of Digitalis on Acute Cardiac Dilatation Produced by Anoxemia. E. J. Van Liere, G. Crisler and J. E. Hall, Morgantown, W. Va.—p. 408.
Effects of Potassium Antimonyl Tartrate on Blood and Hematopoietic Organs. S. P. Lucia and J. W. Brown, San Francisco.—p. 418.
Elimination of Theobromine and Caffeine from Circulation. R. A. Hatcher and N. T. Kwit, New York.—p. 430.
Morphine Acidosis. N. Rakieten, H. E. Himwich and D. Du Bois, New Haven, Conn.—p. 437.
Control of Cyanide Action: Cyanohydrin Equilibria in Vivo and in Vitro. E. K. Marshall Jr. and M. Rosenfeld, Baltimore.—p. 445.
*Sodium Formaldehyde Sulphoxylate in Experimental Acute Mercurial Poisoning. H. Brown and J. A. Kolmer, Philadelphia.—p. 462.
Studies of Morphine, Codeine and Their Derivatives: VII. Dihydromorphine (Paramorphan), Dihydromorphinone (Dilaudid) and Dihydrocodeinone (Dicodide). N. B. Eddy and J. G. Reid, Ann Arbor, Mich.—p. 468.

Effect of Digitalis on Cardiac Dilatation Produced by Anoxemia.—Van Liere and his co-workers subjected twenty-three normal dogs to anoxemia of various grades of intensity so as to produce cardiac dilatation. They found that, if these animals were given digitalis and again subjected to anoxemia, the amount of cardiac dilatation was appreciably lessened. The action of digitalis was more efficacious in the less extreme ranges of anoxemia, although even in very severe degrees of anoxemia it exerted a distinct influence. Differences in cardiac rate could not account for a smaller heart after digitalis had been given and anoxemia administered, as the heart actually beat slower. Even though this allowed more time for relaxation, the cardiac silhouette was smaller. If the vagi were cut, however, the heart beat much faster and the more striking results obtained during anoxemia when the vagi were sectioned could be explained by a more rapid heart. Venous pressure changes could not explain the smaller cardiac silhouette, as digitalis in the normal dog produces slight changes in the venous pressure. It was felt that digitalis acted directly on the cardiac musculature so that the tone of the heart was increased and the contraction was more complete. The muscle fibers were capable of withstanding greater strain and so allowed less cardiac dilatation. The effect might be the same or even be more striking in certain types of abnormal hearts. The data suggest, in view of the clinical reports of Kaufmann and Meyer and those of Somervell, that it might prove beneficial to administer small but effective doses of digitalis as a

prophylactic measure to certain patients who will be exposed to high altitudes and who have not been properly acclimated.

Sodium Formaldehyde Sulphoxylate in Mercurial Poisoning.—Brown and Kolmer were unsuccessful in their endeavor to corroborate the results obtained by Rosenthal with sodium formaldehyde sulphoxylate in mercurial poisoning. In their experiments, using only the minimal lethal dose of mercuric chloride, they had but indifferent success in saving the rabbits with sodium formaldehyde sulphoxylate. If the mercury is allowed to get a sufficient start, the antidote is of no value in saving the rabbits. That is, if a single intravenous injection of the antidote is not administered before the kidneys have become irreparably damaged, a second injection is apparently of no avail. Intravenous injections are unnecessary, as good results were obtained if the sulphoxylate was administered by mouth within the time necessary to prevent absorption of sufficient mercury to be toxic. Evidence of a direct alleviating action of sulphoxylate on the kidneys was not obtained. Repeated injections have never prevented the death of any rabbits from nephritis if the first injection has been given more than one hour after the mercuric chloride has been administered. The primary action of the sulphoxylate is apparently its reducing action, the effect being to decrease the amount of corrosive mercury absorbed by the formation of insoluble metallic mercury. Of the rabbits that survived as a result of the administration of sulphoxylate, all showed some increase in urea nitrogen, which ranged from about twice normal in those animals in which the antidote was administered just before the mercurial to about five times normal when the antidote was given after the mercurial. In the surviving animals, all the urea values returned to normal in from three to five days. The authors believe that the chief value of sodium formaldehyde sulphoxylate as an antidote in acute mercurial poisoning lies in its use by mouth in sufficient quantities and sufficiently early. Intravenous treatment should be used cautiously and in somewhat lower dosage than that recommended by Rosenthal in order to prevent complications due to the fact that the sulphoxylate is more toxic to a person poisoned by mercury than to a normal organism.

Medical Annals of District of Columbia, Washington

3: 295-320 (Dec.) 1934

Surgery in Treatment of Pulmonary Tuberculosis. W. R. Morris, Washington.—p. 295.
Value of Artificial Pneumothorax in Tuberculosis. W. D. Tewksbury, Washington.—p. 302.
Repair of Vesicovaginal Fistulas: Report of Two Cases. H. A. Fowler, Washington.—p. 304.
Congenital Gonorrhea of Female Genitalia: Report of Three Cases. B. Notes and H. Newman, Washington.—p. 306.
Does the Child Health Conference Interfere with Private Practice? V. L. Elliott, Rockville, Md.—p. 308.

Michigan State M. Society Journal, Grand Rapids

34: 1-58 (Jan.) 1935

Tannic Acid Treatment of Burns. G. C. Penberthy, Detroit.—p. 1.
Uterine Fibroids: Importance of Diagnostic Curettage in Their Management. N. F. Miller and G. H. Sehring, Ann Arbor.—p. 4.
*Malignant Neutropenia: Its Etiology and Treatment. W. H. Gordon, Detroit.—p. 7.
Management of Glaucoma. F. B. Fralick, Ann. Arbor.—p. 11.
Solitary Intramural Fibroma of Pylorus: Case Report. D. J. Leithauser and M. O. Cantor, Detroit.—p. 15.
Pneumonia: Short Clinical Lecture. W. M. Donald, Detroit.—p. 17.
The Education of Frank Andrews. A. W. Crane, Kalamazoo.—p. 19.
As Seen Abroad. J. Powers, Saginaw.—p. 26.
Temporal Lobe Abscess of Otitic Origin. O. B. McGillicuddy, Lansing.—p. 32.
Coronary Thrombosis with Paroxysmal Ventricular Tachycardia. H. Stalker, Detroit.—p. 36.

Malignant Neutropenia.—Gordon believes that the absolute etiology of malignant neutropenia is still unknown. The apparent best results obtained in its treatment have been through the use of blood transfusions, nucleotides or their derivatives and roentgen therapy. Possibly these forms of treatment have the same effect on the system by giving to it the products of the destroyed nucleus, which are necessary in the production of the white blood cell. The routine in treatment that the author has followed and found to be most successful includes the general and specific forms of therapy that lead to an increase in nuclein or its by-products. General systemic stimulation is given, accompanied by intravenous dextrose and saline solution, mouth washes, irrigations and oral hygiene. A high nuclein diet is given. Small blood transfusions of whole or citrated blood have been most valuable. When there are signs of jaundice or of liver exhaustion, blood transfusions should not be given. Whole blood (40 cc.) is given intramuscularly twice a day in the same site of injection. The irritation of the muscular tissue probably produces a substance that stimulates the bone marrow. Also it is of value because a concentrated form of nuclear material is given to the body. Another reason is that possibly a substance exists in the normal blood that is lacking in the patient having malignant neutropenia. Nucleotide and nucleinic acid are next in importance in the treatment. This produces an irritating stimulation and supplies a concentrated form of nuclein to the body to stimulate the production of white blood cells.

Military Surgeon, Washington, D. C.

76: 1-56 (Jan.) 1935

Recent Developments in Medical Field Equipment and Transport at the Medical Department Equipment Laboratory, U. S. Army, G. L. McKinney.—p. 11.
Rupture of Aortic Aneurysm into Superior Vena Cava. W. E. Graham and S. Weissross.—p. 26.
Treatment of Phenol Poisoning with Methylene Blue. W. M. Sheppe.—p. 30.
Health Insurance in Germany. A. W. Hankwitz.—p. 33.

New England Journal of Medicine, Boston

211: 1127-1178 (Dec. 20) 1934

Value of Prolonged Preoperative Drainage in Prostatic Obstruction. J. D. Barney and S. B. Kelley, Boston.—p. 1127.
*Retinitis in Diabetes. H. P. Wagener, T. J. S. Dry and R. M. Wilder, Rochester, Minn.—p. 1131.
Artificial Menopause in Carcinoma of Breast. G. W. Taylor, Boston.—p. 1138.
Clinical Status of Vitamin D Milks. J. W. M. Bunker and R. S. Harris, Cambridge, Mass.—p. 1140.
Effect of Acute Respiratory Tract Infections on Latent Silicosis. J. B. Hawes 2d and M. J. Stone, Boston.—p. 1147.
Psychiatric Hazards of Medical Practice. L. C. Marsh, Tucson, Ariz.—p. 1149.
What Is an Adequate Health Program? I. V. Hiscock, New Haven, Conn.—p. 1153.
Health Resources in Southern Berkshire. Marion C. Woodbury, Great Barrington, Mass.—p. 1156.
The State Infirmary. Flora E. Burton, Boston.—p. 1158.
Convalescents in Health Units. Lucy A. Turner, Worcester, Mass.—p. 1159.

211: 1179-1232 (Dec. 27) 1934

Slipping Epiphysis of Head of Femur. J. W. Sever, Boston.—p. 1179.
Rheumatic Heart Disease in Early Childhood. J. A. Lyon, Washington, D. C.—p. 1185.
Coarctation of Aorta in Father and Son. W. G. Walker, Brockton, Mass.—p. 1192.
Clinical Remarks on Hypertension and the Kidney. A. M. Fishberg, New York.—p. 1195.
Indications for and Principles of Surgical Therapy in Disorders of the Kidney and Ureter. P. W. Aschner, New York.—p. 1196.

212: 1-42 (Jan. 3) 1935

Limitations of Enterostomy and Undesirable Effects Incident to Its Use. I. M. Webber, Portland, Maine.—p. 1.
Leukoplakia Buccalis and Cancer. S. H. Sturgis and C. C. Lund, Boston.—p. 7.
Acute Anaphylactic Shock Following Intracutaneous Test for Sensitivity to Horse Serum: Report of Fatal Case. H. J. Freedman, Boston.—p. 10.
Relation of Arcus Senilis to Arteriosclerosis and Senility. C. E. White, Taunton, Mass.—p. 10.

Retinitis in Diabetes.—Wagener and his associates observed that of 1,052 patients having diabetes 17.7 per cent had hemorrhagic lesions of the retina, 5.5 per cent hemorrhage alone and 12.2 per cent hemorrhage associated with exudates. They believe that the very existence of retinitis in cases in which patients have no other signs of vascular disease must mean that diabetes alone does something to injure the finer arterioles or venules of the retina. The retinal disease in question seems to pass progressively through successive stages, beginning with hemorrhages only and eventuating in very evident disease of the veins. The final stage is manifested by hemorrhage into the vitreous and the fully developed picture of retinitis proliferans. Injury to the retinal vessels may occur in all cases of diabetes. If so, it is insufficient in degree in most cases to bring about visible abnormalities in the vessels or to give rise to actual hemorrhages or exudates. In a few cases it does do so, and when the circulation of the retina is

adversely influenced by the presence of arterial or arteriolar sclerosis, it is more likely to be manifest. In that case a lesion characteristic of diabetes is added to a retinal vascular lesion otherwise characteristic of hypertension; this gives a composite picture from which the trained observer can diagnose diabetes. By what means diabetes injures the retinal vessels in this characteristic manner, whether because of its accompanying hyperglycemia or hypercholesterinemia or because of the presence intermittently of the products of ketosis, the authors cannot say. The lesions are observed in cases of mild diabetes as frequently as in cases of severe diabetes, in those in which insulin is used as well as in those in which diabetes is controlled without insulin, early in the disease as well as late, although more frequently late, and when the carbohydrate of the diet has been unlimited as well as when it has been restricted and more fat has been fed. The possibility occurs to the authors that lesions like those observed in the retina may also occur in the peripheral nerves and thus account for the high incidence of peripheral neuritis among patients with retinitis.

New Orleans Medical and Surgical Journal

87: 425-498 (Jan.) 1935

Analysis of the Hookworm Problem in Mississippi. W. S. Leathers and A. E. Keller, Nashville, Tenn.—p. 425.
*Some Observations on Newer Methods of Malaria Control. A. M. Wynne, Merigold, Miss.—p. 435.
The General Practitioner and Tuberculosis. H. Boswell, Sanatorium, Miss.—p. 443.
Rôle of Glucose in Surgery. P. B. Brumby, Lexington, Miss. —p. 446.
Glaucoma. K. W. Constantine, Birmingham, Ala.—p. 453.
Diagnosis and Treatment of Intussusception by Use of Barium Enema Under Fluoroscopic Control. C. P. Rutledge, Shreveport, La. —p. 457.
Total Thyroidectomy in Treatment of Congestive Heart Failure and Angina Pectoris. W. K. Purks, Vicksburg, Miss.—p. 464.
Aneurysm of the Abdominal Aorta Simulating Renal Kidney: Case Report. R. L. Gordon, New Orleans.—p. 466.
Disappearance of Creatinuria After Lactic Acid Therapy. G. Fasting, New Orleans.—p. 467.
Some Laxative Foods. O. W. Bethea, New Orleans.—p. 468.

Newer Methods of Malaria Control.—Wynne bases his statements on his experience in treating 476 cases of malaria. Of the 159 completed treatments, sixty-nine were tertian and ninety estivo-autumnal; one patient had both tertian and estivo-autumnal parasites. The following treatment was carried out as closely as possible in all cases: A thick smear of the patient's blood was taken. He was given sufficient acetylsalicylic acid to control temperature, a purgative, and one tablet of atabrine before each meal for five days. Alcoholic drinks were prohibited and the diet was restricted to one-half the usual amount of meat. If the blood was estivo-autumnal positive, the patient was given atabrine, one tablet before each meal and one-sixth grain (0.01 Gm.) of plasmochin three times daily; the dietary instructions were the same as for the tertian type. The patient with the mixed infection was given atabrine and plasmochin. Of the 159 patients treated with atabrine and plasmochin, 152, or 95.6 per cent, had a negative report on every blood test for the required five weeks. Of the remaining seven, all of whom had tertian malaria, one had a positive blood test the second week when atabrine was repeated, the blood remaining negative since; two had a positive blood the fourth week, received atabrine and have been negative since completing the second treatment; a fourth patient, who had a relapse, has been given three atabrine treatments and is still under observation. Relapses occurred in the three remaining patients, each having a distinct malarial paroxysm and positive tertian blood, receiving 60 grains (4 Gm.) of quinine in twenty-four hours, then atabrine, and having had negative blood tests since. Of the cases treated with quinine, the results are as follows: The six patients given intravenous quinine and the twelve treated intramuscularly had no relapses and no bad results from the drugs as given. As for the 159 cases treated with 20 grains (1.4 Gm.) of quinine daily by mouth, there were seventeen relapses during the course of the treatment or while quinine was being taken and eight relapses within two weeks following completion of the treatment. Of the group treated with 20 grains (1.4 Gm.) of quinine magnesium sulphate solution, there were seven relapses during treatment and six relapses within two weeks following completion of the treatment.

New York State Journal of Medicine, New York

35: 1-40 (Jan. 1) 1935

Choice of Operations in Treatment of Peptic Ulcer. G. J. Heuer, New York—p. 1.
Diagnosis and Treatment of Anemia. S. L. Vaughan, Buffalo.—p. 10.
Sulpharsphenamine: Its Use and Status in New York State. A. Pfeiffer, Albany.—p. 13.
Results Obtained in a Relatively Small Community Using Single Dose Toxoid Method for Immunization Against Diphtheria. H. J. Shelley, Middletown.—p. 19.
Some Pitfalls in Treatment of Gastric Ulcer. W. J. M. Scott and H. L. Segal, Rochester.—p. 21.
Obstetric Practice in Northeastern New York State. E. M. Jameson, Saranac Lake.—p. 25.

Public Health Reports, Washington, D. C.

49: 1557-1600 (Dec. 28) 1934

The Official United States and International Unit for Standardizing Gas Gangrene Antitoxin (Vibrion Septique). Ida A. Bengtson. —p. 1557.
*Influence of Vitamin B_2 on Hematopoiesis in Experimental Anemia of Albino Rat. M. I. Smith and E. F. Stohlman.—p. 1569.

50: 1-36 (Jan. 4) 1935

Effects of Inhalation of Asbestos Dust on Lungs of Asbestos Workers: Preliminary Study. A. J. Lanza, W. J. McConnell and J. W. Fehnel.—p. 1.
Endemic Typhus in Alabama. J. N. Baker, J. G. McAlpine and D. G. Gill.—p. 12.
The Educator's Point of View of Psychiatric Service in a Penal Institution. R. A. McGee.—p. 21.

Influence of Vitamin B_2 on Hematopoiesis in Anemia.—Smith and Stohlman compared the rate of hemoglobin and red blood cell regeneration in animals with a standard degree of anemia under adequate dietary conditions with that under conditions of B_2 deficiency. Albino rats were used. The type of experimental anemia was produced by means of phenylhydrazine. In the normal rat this anemia is transient in character, complete recovery taking place in about ten days. The early stages of recovery are accompanied by pronounced reticulocytosis. Elimination of the B_2 vitamin from the dietary of the rat does not materially affect the progress of recovery from the standard phenylhydrazine anemia. Vitamin B_2 does not appear to be concerned with hematopoiesis in the albino rat.

Southern Medical Journal, Birmingham, Ala.

28: 1-106 (Jan.) 1935

Undulant Fever: Report of Case Simulating Pott's Disease. V. W. Archer, University, Va.—p. 1.
*Traumatic Lesions of Thorax: Three Cases of Cardiac Contusion. D. C. Elkin, Atlanta, Ga.—p. 4.
Syphilis of Clavicle: Report of Five Cases. H. E. Conwell, Birmingham, Ala.—p. 11.
Intravenous Urography for the General Practitioner. M. B. Wesson, San Francisco.—p. 16.
*Pathology of Milk Anemia. E. von Haam, New Orleans.—p. 22.
Idiopathic Anemias of the Aplastic Type. E. B. Bradley, Lexington, Ky.—p. 27.
Pulmonary Emphysema: Important Sequel of Chronic Lung Lesions. K. Dunham, Cincinnati.—p. 32.
Treatment of Bronchial Asthma. L. Unger, Chicago.—p. 35.
Prevention of Nervous and Mental Instability. O. W. Hill, Knoxville, Tenn.—p. 39.
Importance of Immature White Blood Cells in Diseases of Children. W. A. McGee, Richmond, Va.—p. 43.
Further Observation on Evils of Too Much Milk. E. Rosamond, Memphis, Tenn.—p. 46.
Asymptomatic Neurosyphilis. P. A. O'Leary, Rochester, Minn.—p. 47.
Some Results from a Conservative Obstetric Clinic. J. R. McCord, Atlanta, Ga.—p. 53.
Traumatic Ulnar Neuritis. S. O. Black, Spartanburg, S. C.—p. 55.
Some Observations Concerning Laryngeal Neoplasms. J. H. Foster, Houston, Texas.—p. 59.
So-Called Hidden Type of Mastoiditis as Causative Factor of Diarrhea in Infancy. C. K. Lewis, Memphis, Tenn.—p. 62.
The Practical Side of Public Health. L. Banov, Charleston, S. C. —p. 65.
Lone Calculus of Bile Ducts. G. Baz, Mexico City, Mexico.—p. 67.
Rupture of Male Urethra. W. M. Coppridge, Durham, N. C.—p. 69.
Morphologic Effects of Excess Amounts of Iodine on Thyroid Gland of the Cat. W. F. Abercrombie, W. H. Crane and J. L. Brakefield, Birmingham, Ala.—p. 72.

Cardiac Contusions.—Elkin reports three cases of cardiac contusion. The most common cause of such an injury is an automobile accident in which an individual is suddenly thrown forward against the steering wheel. The sternum and ribs may be broken, and their ends directly injure the heart, or the sudden compression of the heart may injure it, although a break has not occurred. The three cases reported are exam-

ples of nonpenetrating cardiac injuries in which recovery took place. Any patient who is struck in the chest must be suspected of such an injury, particularly if such symptoms as precordial pain, dyspnea and tachycardia are present. Persistence of these symptoms, together with irregularity of the heart, cyanosis and a peculiar tick-tick quality of the heart sounds, makes the diagnosis almost certain. The treatment is symptomatic. The chief reliance is to be placed on morphine and sedatives for quiet and rest, and on oxygen for dyspnea and cyanosis.

The Pathology of Milk Anemia.—Von Haam describes the pathologic changes in albino rats suffering from goat's and cow's milk anemia. Hypertrophy of the cardiac muscle, atrophy of the spleen and fatty degeneration of the liver were the most characteristic gross anatomic features. Histologic study confirmed the gross pathologic observations and showed as the only differential diagnostic sign between the two types of anemia a disturbance of leukopoiesis in the animals fed with goat's milk. The pathologic changes in goat's milk anemia are not similar to the pathologic observations in human cases of pernicious anemia, and any near relationship between the two types of anemia has to be declined. Control animals showed none of the foregoing changes, which therefore can be regarded as characteristic of nutritional anemia in the albino rat.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

42: 669-724 (Dec.) 1934

Infection of Immature Vagina: Observations and Results: Study of One Hundred and Eighty-Nine Patients. G. C. Schauffler, Portland, Ore.; R. Duke, Seattle; S. F. Crynes and Caroline Schauffler, Portland, Ore.—p. 669.

*Typhoid Spine: Its Pathogenesis, Clinical Aspects and Surgical Care. L. P. Gambee, Portland, Ore.—p. 685.

High Mortality in Obstetrics. B. Bakewell, Santa Barbara, Calif.—p. 692.

Carcinoma of Large Intestine and Its Surgical Treatment. C. T. Sweeney, Medford, Ore.—p. 697.

Severe Gunshot Wound of the Abdomen: Report of Case. K. J. May, Republic, Wash.—p. 705.

Typhoid Spine.—Gambee says that diagnosis of typhoid spine is based on an unmistakable history of typhoid, followed weeks or months or years later by a painful, sore back. If the history affords no other explanation for the pathologic changes and the roentgenogram reveals dense bony deposits in the intervertebral ligaments or destruction or narrowing of one intervertebral disk, the diagnosis is quite probable and becomes more certain when the Widal test is positive. The author reports a case in which a vertebral abscess developed four years after the patient had apparently recovered from a typhoid spine. The operation that he resorted to in draining the abscess represents a new departure in the management of this complication of typhoid. The patient was given a general anesthetic and an incision was made along the lower border of the twelfth rib on the left, forward to the outer border of the rectus and then downward far enough to give free exposure. The parietal peritoneum was stripped mesially, the sigmoid and other intra-abdominal viscera being taken with it. The infiltration of the soft tissues made it easy to identify the involved part of the spinal column. These superficial soft tissues were incised close to the abdominal aorta and a pocket containing about 10 cc. of yellow pus was entered. Cultures of this pus were taken. Roughened bone constituted the floor of the abscess, which was definitely circumscribed. A drill hole was then made through the center of this exposed bone and it was found that the bone was only egg-shell in thickness and that there was an underlying round abscess about 2 cm. in its greatest diameter. It also contained yellow pus. Cultures of this pus were taken. The abscess evidently lay between the two abutted vertebrae. A Penrose drain was placed in the abscess and taken out through a stab wound just above the left anterior superior spine of the ilium. The wound was then closed in layers without further drainage. The patient recovered rapidly. The wound healed without infection and at the end of four days the patient's temperature was normal. He left the hospital on the tenth postoperative day. There still was a small amount of drainage. Ten weeks later roentgenograms showed considerable bone repair. The operation is proposed as a rational way of handling osteomyelitis of the lumbar vertebrae, whether caused by typhoid bacilli or by pyogenic organisms.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Brain, London

57: 355-540 (Dec.) 1934

The Berger Rhythm: Potential Changes from Occipital Lobes in Man. E. D. Adrian and B. H. C. Matthews.—p. 355.

Spinal Shock and Some Features in Isolation Alteration of Spinal Cord in Cats. E. G. T. Liddell.—p. 386.

*Congenital Dermal Sinuses: Source of Spinal Meningeal Infection and Subdural Abscesses. A. E. Walker and P. C. Bucy.—p. 401.

Some Aspects of Sweat Secretion in Man, with Especial Reference to Action of Pilocarpine. W. C. Wilson.—p. 422.

*Localized Abnormal Flushing and Sweating on Eating. V. Uprus, J. B. Gaylor and E. A. Carmichael.—p. 443.

Spinal Terminations of Projection Fibers from Motor Cortex of Primates. E. C. Hoff and H. E. Hoff.—p. 454.

Acoustic Value of Several Components of Auditory Pathway. F. A. Mettler, G. Finch, E. Girden and E. Culler.—p. 475.

Some Observations on Cerebral Veins. J. E. A. O'Connell.—p. 484.

Hemichorea Associated with Lesion of Corpus Luysii. J. P. Martin and N. S. Alcock.—p. 504.

Disturbances After Laminar Thermocoagulation of Motor Cortex. J. G. Dusser de Barenne.—p. 517.

Congenital Dermal Sinuses.—Walker and Bucy cite seven cases. A congenital dermal sinus manifested externally by a small dimple in the midline of the back, becoming infected, discharges periodically serous or purulent material. This sinus extends to the meninges and its lumen acts as a pathway for infection to reach these structures. When this occurs, producing abscess formation, fever develops, the back becomes painful and rigid, and the neck becomes stiff. Weakness of the lower extremities ensues, but sensory disturbances are slight or absent. The spinal fluid, usually sterile, shows a pleocytosis. Surgical removal of the sinus and subdural abscess with drainage produces a complete cure in almost every case. The relation of this congenital dermal sinus to spina bifida occulta is discussed and the incidence of the latter in a series of 7,500 roentgenograms taken of the spine in a general medical and surgical clinic is given. The etiology of these congenital dermal sinuses and pilonidal cysts is discussed.

Localized Abnormal Sweating on Eating.—Uprus and his co-workers submit the case of a woman, aged 22, in whom at the age of 5 glands were removed in the right side of the neck through a horizontal incision over the middle of the sternocleidomastoid muscle. One year later, when she was eating, well localized flushing occurred in the right submental region —a triangular area bounded medially by the midline, laterally by the ramus of the jaw to a point 1 cm. in front of the angle of the jaw, and posteriorly by the line of the hyoid bone. With the responses of the skin of the face and the normal side of the chin when indifferent limbs were heated taken as controls, the response of the abnormal area is definitely pathologic. When the patient ate, flushing indicative of vasodilatation in the abnormal area occurred even when vasoconstriction was in progress. The same stimulus that produced salivation caused a combination of vasodilator and secretory phenomena in the abnormal area of skin independent of general vasomotor activity. The stronger the stimulus for salivation, the more rapidly did the abnormal skin reaction occur. Anesthetization of the abnormal area by blocking the nervus cutaneus colli was ineffective in stopping the abnormal reaction. On anesthetization of the lingual nerve with the chorda tympani, the abnormal reaction of the vessels and sweating in the right submental region were not observed. The anesthetization of afferent pathways might be invoked to explain the failure of this response, but the authors are convinced that stimuli from either side of the mouth were equally effective, and no difference in response was observed when half the tongue and the gums and cheek of the right side were cocainized. The efferent pathway would therefore appear to be in the chorda tympani. The chorda was involved by the anesthetization, since observation of the orifices of Wharton's ducts in the floor of the mouth showed profuse salivation from the left side and none from the right. The period of latency between the original trauma and the onset of symptoms is consistent with an unusual regenerative phenomenon having occurred.

East African Medical Journal, Nairobi

11: 273-304 (Dec.) 1934

Some Subjects for Medical Research in East Africa. R. P. Cormack. —p. 276.
Some Indian Methods of Midwifery. S. D. Karve.—p. 286.
Unusually Large Retroperitoneal Cyst in African Native. D. O. Latham.—p. 291.
Unusual Case of Dracontiasis. D. Bamundaga.—p. 292.

Edinburgh Medical Journal

42: 1-48 (Jan.) 1935

*Suggested Hypothesis of Kidney Mechanism. A. R. M'Clure.—p. 1.
Innervation of Distal Colon. G. A. G. Mitchell.—p. 11.
Intertarsal Developmental Ankylosis. D. M. Greig.—p. 21.

Hypothesis of Kidney Mechanism.—M'Clure suggests a modification of Cushny's hypothesis of kidney mechanism. The stage of ultrafiltration is assumed. But instead of pure reabsorption in the tubules, it is supposed that the cells reabsorb substances relatively valuable to the body and simultaneously secrete unwanted substances, and further that the amounts of material reabsorbed and material secreted are in equilibrium —in other words, that an exchange is effected by the kidney cells as between the filtrate and the general blood stream. An equimolecular basis is assumed for the exchange: that an equivalent amount of solids is simultaneously secreted to take the place of solids reabsorbed. The idea of mixed reabsorption and secretion in the tubules is not new. It has been suggested by Wilkinson. The only difference is that the author is assuming a numerical relationship between the two processes in order to put the resulting theory on a quantitative basis.

Lancet, London

2: 1323-1378 (Dec. 15) 1934

Functional Derangement of Intestine That Follows Abdominal Operations. V. Bonney.—p. 1323.
Mean Diameter of Erythrocytes in Alcholuric Family Jaundice and Effects of Splenectomy. J. C. Hawksley and Ursula M. Bailey. —p. 1329.
*Periodicity of Influenza. B. E. Spear.—p. 1331.
The Mantoux Test in General Hospital Population: Note on Intradermal Syringe of Pictet. G. G. Kayne.—p. 1333.
Some Observations on Treatment of Tabes with Malaria. A. G. Yates. —p. 1335.

Periodicity of Influenza.—To determine the periodicity of influenza, Spear studied the material contained in the "Weekly Return" of the Registrar-General for the last forty-four years. During this period there have been forty-three prevalences or epidemics in London of widely differing degrees of severity, the analysis of which indicates that the conditions associated with the approach of summer exercise a restraining influence on an established prevalence of influenza, but that on the return toward the winter solstice the prevalence is renewed—generally with greater mortality—at a seasonal phase approximately the same as that at which the first prevalence occurred, and that in the case of a prevalence associated with an approaching winter solstice the epidemic impulse is completely exhausted and a year or more of freedom from epidemic prevalence follows. The author gives rules that enable an approximate forecast of a prevalence to be made.

2: 1379-1430 (Dec. 22) 1934

Dosage Above Pharmacopeial Maximum. A. F. Hurst.—p. 1379.
Pulmonary Asbestosis: Review of One Hundred Cases. W. B. Wood and S. R. Gloyne.—p. 1383.
*Surgical Aspects of Spastic Colon and Prediverticular State. A. L. d'Abreu.—p. 1385.
Synergism Between Estrin and Pituitrin. E. Møller-Christensen. —p. 1388.
Hematuria in Appendicitis. W. McKissock.—p. 1389.
Recent Wave of Streptococcic Infection. H. L. Wallace and A. B. Smith.—p. 1391.

Surgical Aspects of Spastic Colon and Prediverticular State.—D'Abreu studied four cases shown roentgenographically to be in the prediverticular state unaccompanied by diverticulosis and in which laparotomy was carried out because of pain and the passage of blood and mucus. In one of the cases, laparotomy was done under general anesthesia and no abnormality was discovered. A barium sulphate enema taken some months later showed the appearance of prediverticulosis. Abnormalities of the prediverticular stage during life can be studied only under spinal anesthesia. Peristalsis in the large intestine depends on the automaticity of the muscular fibers, the myenteric plexuses of Meissner and Auerbach and nervous impulses from the vagus and the sacral parasympathetic; relaxation, except in the case of the sphincters, depends on sympathetic nervous influences. General narcosis paralyzes the parasympathetic system, while spinal anesthesia, on the other hand, prevents the action of those sympathetic fibers which flow out to the abdominal viscera and either leaves the parasympathetic unaffected and in undisputed domination or more probably allows the intrinsic dynamics of the intestine free unimpeded action. Learmonth has produced evidence that there is a high degree of autonomy in the plain muscle of the intestine and its intrinsic nerves. In portions of intestine in the prediverticular state removed along with areas of established diverticulation, the most notable change seen is hypertrophy of the circular muscle coat, which projects as bands into the lumen of the intestine. The author has found hyperchlorhydria present in spastic prediverticular subjects. In cases in which presacral and lumbar colonic neurectomy has been done, subsequent barium sulphate enemas may present roentgen appearances reminiscent of those seen in the prediverticular state. In a series of cases after lumbar sympathectomy had been performed for vasospastic conditions in the legs there is no alteration in the normal barium sulphate enema picture of the intestine. Tobacco smoking frequently aggravates the symptoms of these prediverticular and spastic colon subjects. Nicotine diminishes activity in both the sympathetic and the parasympathetic systems, but, as the normal balance favors the vagus and the sacral autonomic outflow, increased activity of the motor function leads to excessive peristalsis and spasticity. Pylorospasm is often present in heavy smokers. The pathogenesis as observed in the change from the prediverticular state to that of diverticulosis leaves little room for a developmental theory of causation.

Medical Journal of Australia, Sydney

2: 737-768 (Dec. 8) 1934

Cancer and Tuberculosis: X. Approach to Problem of Stomach. T. Cherry.—p. 737.
Psittacosis in Australian Parrots. F. M. Burnet.—p. 743.
*Observations on Guanidine, Glucose and Calcium Content in Blood in Eclampsia. Vera I. Krieger.—p. 746.
Symptom-Producing Factors in Right Visceroptosis. A. E. Lee. —p. 750.

2: 769-798 (Dec. 15) 1934

Mental Aspects of Gynecology. H. Leaver.—p. 769.
Psychiatric Aspects of Gynecologic Conditions. J. A. McGeorge. —p. 777.

2: 799-830 (Dec. 22) 1934

Cesarean Section: Review of Four Hundred and Eighty-Six Consecutive Operations at the Women's Hospital, Melbourne. W. I. Hayes. —p. 799.
Retained Tracheotomy Tube. P. L. Hipsley.—p. 807.
Allergy in Otorhinolaryngologic Practice. A. B. K. Watkins.—p. 810.

Guanidine, Dextrose and Calcium Content in Blood in Eclampsia.—Krieger correlated the guanidine content in the blood in a series of thirty cases of eclampsia with dextrose and calcium concentrations. No appreciable rise in guanidine was observed. In 33 per cent of the specimens of blood examined the blood sugar value was below 0.8 per cent, although only isolated estimations, without reference to the phase of eclamptic seizure, were performed. This indicated the probability that hypoglycemia did exist at some phase in relation to the convulsion. In 39 per cent of the eclamptic cases the calcium content of the blood was less than 9 mg. per hundred cubic centimeters of blood. The statement of Minot and Cutler that eclampsia was characterized by high guanidine associated with low dextrose and low calcium concentration in the blood has thus been disproved.

Medical Press and Circular, London

189: 575-596 (Dec. 26) 1934

*Treatment of Acute Infective Osteomyelitis: Plea for Diaphysectomy. R. A. Ramsay.—p. 581.
Intracranial Calcifications. C. P. G. Wakeley.—p. 586.

Diaphysectomy in Osteomyelitis.—Ramsay advocates diaphysectomy as the ideal treatment of acute infective osteomyelitis or subperiosteal resection of all that part of the bone which is infected. Such an operation leaves a widely open and at first soft-walled space, which is well drained; the soft

walls form new bone in a surprisingly short time and this new bone does not enclose a large infected dead mass requiring removal at a later date and causing prolongation of the illness. In performing diaphysectomy, the operative details naturally vary according to the bone affected. In all other methods of treatment, large sequestrums are formed and have to be dealt with, and when they are removed large cavities remain which persist for a considerable time and may require repeated operations for their treatment; even so, the end result may be far from satisfactory. Diaphysectomy prevents the formation of sequestrums and does not leave a large, rigid walled cavity, so that the extent of any secondary operations is reduced and the final satisfactory result is attained in a much shorter time than by any other method; therefore it may justly be asserted that diaphysectomy hastens recovery and lessens the number and extent of secondary operations. Diaphysectomy is a radical operation which offers the advantages of life, limb and time saving, and this consideration of the subject is put forward in the hope that this method of treatment may receive the recognition which, in the opinion of the author, it deserves.

Practitioner, London

133: 657-764 (Dec.) 1934

Treatment of Hernia. G. Keynes.—p. 657.
Treatment of Hernia in Children. L. E. Barrington-Ward.—p. 669.
Hernia as Surgical Emergency. N. C. Lake.—p. 675.
Postoperative Chest Complications and Their Treatment. C. J. Fuller.—p. 685.
Athletic and Training Dietetics. A. Abrahams.—p. 695.
Nonspecific Colitis. D. C. Hare.—p. 705.
Cancer of Nasal Accessary Sinuses: Reports of Thirteen Cases. E. Watson-Williams.—p. 717.
Cancer of Larynx. C. Horsford.—p. 724.
Symptomatic Treatment for the Common Cold. A. T. Todd.—p. 730.
Short Study of Psychoanalysis. C. W. J. Brasher.—p. 733.
Medicolegal Problems in General Practice: XI. Neuroses and Psychoses in Relation to Violence. W. A. Brend.—p. 741.

South African Medical Journal, Cape Town

8: 861-900 (Dec. 8) 1934

Dangers of X-Rays and Radioactive Bodies and Methods of Protection Against Them. F. H. Dommisse.—p. 863.
Climate as an Essential in Treatment of Tuberculosis. G. H. Evans.—p. 865.
Surgical Conditions of the Liver, Including the Gallbladder. I. W. Brebner.—p. 867.
Diagnosis and Treatment of Anemias. M. M. Suzman.—p. 871.
Meteorological Factors in Incidence of Malaria in Pietermaritzburg. C. C. P. Anning.—p. 875.
The Workmen's Compensation Act. H. G. Williams.—p. 879.

Tubercle, London

16: 97-144 (Dec.) 1934

Effect of Dilute Solutions of Certain Antiseptics on Viability of Tubercle Bacilli. S. R. Douglas and P. Hartley.—p. 97.
Sensitization of Guinea-Pigs Following Single Injection of Small Dose of Dead Tubercle Bacilli. S. R. Douglas and P. Hartley.—p. 100.
Preparation of Old Tuberculin by Use of Synthetic Mediums, with Observations on Its Properties and Stability. S. R. Douglas and P. Hartley.—p. 105.
*Tuberculosis in Relation to Blood Groups. F. C. S. Bradbury.—p. 113.
First Attempts at Artificial Pneumothorax in Pulmonary Phthisis. C. Forlanini.—p. 121.

Tuberculosis in Relation to Blood Groups.—Bradbury believes that tuberculous persons show a higher proportion of blood group 4 than do nontuberculous persons. The difference is appreciable in practice, and he was impressed by the correspondence between blood grouping and diagnosis, in the sense that a doubtful case which was found to belong to blood groups 1, 2 or 3 more often turned out to be nontuberculous than tuberculous. He does not suggest that the test should be used as a routine diagnostic aid, but it appears that it may have some value as such. In carrying out this investigation he has had in mind the possible application of blood group testing to the preventive side of tuberculosis. There is no really satisfactory explanation of the manner in which tuberculosis selects its victims, or of the means by which a husband or wife resists the consequences of infection from a diseased partner. If it is a fact that the blood grouping of tuberculous persons is different from that of nontuberculous persons, it becomes possible to theorize as to the reasons for this difference. The author is convinced that there is a difference in the blood group distribution of tuberculous and nontuberculous persons. In support of the evidence that he gives to this effect he states that international statistics are available which have a bearing on the matter.

Chinese Medical Journal, Peiping

48: 1101-1180 (Nov.) 1934

*Sedimentation Rate of Blood of Patients with Kala-Azar. H. L. Chung.—p. 1101.
Acute Monocytic Leukemia: Case Report with Autopsy Findings. Julia Morgan and Y. T. Hsü.—p. 1113.
Orr Treatment of Osteomyelitis and Compound Fractures. C. Chang.—p. 1126.
Behavior of Wassermann and Kahn Reactions in Response to Antisyphilitic Treatment. C. L. Cheng and F. K. Chen.—p. 1134.
Examination of Prisoners at Paoshan, Kiangsu Province, for Microfilariae of Wuchereria Bancrofti Cobbold. S. M. K. Hu.—p. 1143.

Sedimentation Rate in Kala-Azar.—Chung determined the erythrocytic sedimentation rates of thirty-six patients having kala-azar by the time method, and in many cases by the distance method. At the same time the hematocrit value and the plasma proteins were measured in the majority of cases. For control and comparison, the sedimentation rates of fourteen normal persons, nine with miscellaneous diseases, seven with active tuberculosis and fifteen with syphilis were determined. To eliminate the influence of anemia, the blood of twelve patients with kala-azar was artificially converted into a fixed concentration having a hematocrit value of 50 volumes per cent before shaking it up again for the sedimentation test. The sedimentation rate in the fourteen normal Chinese subjects varied from 270 minutes to 3,960 minutes by the time method, and from 1 to 7 mm. by the distance method. The sedimentation rate was uniformly and markedly increased in all thirty-six cases of kala-azar. This was associated with a decrease in plasma albumin and an increase in plasma globulin, euglobulin and fibrinogen. After correction for the anemia that was present, the sedimentation rate was still uniformly above the normal value. The factors possibly involved in this phenomenon are discussed.

Japanese Journal of Experimental Medicine, Tokyo

12: 411-502 (Oct. 20) 1934

Influence of Parenterally Introduced Pancreatic Cell Constituents on External Secretion of Pancreas: First Report. Influence on External Secretion of Pancreas of Pancreatic Cell Constituents Parenterally Introduced in Dog with Pavlov's Permanent Pancreatic Fistula. K. Tabuchi.—p. 411.
Id.: Second Report. Influence of Cell Constituents of Various Organs Parenterally Introduced in Dog with Pavlov's Permanent Pancreatic Fistula. K. Tabuchi.—p. 419.
Id.: Third Report. Influence of Extracts of Pancreatic and Other Organ Cell Constituents Parenterally Introduced in Dog with Pavlov's Permanent Pancreatic Fistula. K. Tabuchi.—p. 423.
Id.: Fourth Report. Mechanism of Pancreatic Juice Hypersecretion Due to Extract of Pancreatic Cell Constituents and Active Substance Exciting Pancreatic Juice Secretion. K. Tabuchi.—p. 427.
Studies on Ricin: Second Report. H. Moriyama.—p. 437.
Influences of Lipoid on Carbohydrate Metabolism: I. Changes in Content of Glucose and Lactic Acid in Blood and of Latter in Urine of Rabbits Caused by Injection of Cholesterin and Lecithin. N. Hosaka.—p. 455.
Attempt to Purify Filtrable Agent of Rous Chicken Sarcoma by Means of Hosoya and Miyata's Method for Purification of Bacterial Toxin. W. Nakahara and H. Nakajima.—p. 497.

Japanese Journal of Gastroenterology, Kyoto

6: 13-50 (July) 1934

Change in Gastric Function in Case of Impaired Function of Liver and Kidneys. S. Kaya.—p. 13.
Significance of Liver in Metabolism of Lipoid Bodies: IV. Lipoid Bodies in Blood and Bile in Cases of Peroral Administration of Glucose to Rabbits. Y. Asoda.—p. 42.
Stomach Juice in Patients Suffering from Gastric and Duodenal Ulcers. Y. Terauchi and K. Watanabe.—p. 46.
General Symptoms in Patients Suffering from Gastric and Duodenal Ulcers. Y. Terauchi and K. Watanabe.—p. 48.

6: 51-60 (Oct.) 1934

Influence of Calcium Diet on Disturbances of Liver Function: I. Calcium Diet and Bilirubin Metabolism. Y. Asoda.—p. 51.
Id.: II. Calcium Diet and Metabolism of Urobilin Bodies. Y. Asoda.—p. 56.

Gynécologie et Obstétrique, Paris

30: 497-575 (Dec.) 1934

*Autovaccines in Treatment of Pyelonephritis of Pregnancy. P. Trillat.—p. 497.
Network and Segmentary Arrangement of Ovary. J. Wallart.—p. 517.
*Delayed Rupture of Water Bag. J. Leon.—p. 529.
Some Observations of Myoma and Pregnancy. H. Perli.—p. 539.
Vitality of Spermatozoa. E. Magias de Torrès.—p. 544.

Autovaccines in Pyelonephritis of Pregnancy.—Trillat has treated patients with pyelonephritis of pregnancy by means of autovaccines made with organisms from the urine. In preparing the vaccines, one should use a relatively short time (maximum of twelve hours) of incubation to avoid abnormally high numbers of colon bacilli. The ampules contain 2 cc. of the vaccine with two, three or four billion bacteria per cubic centimeter. The vaccines are administered subcutaneously, beginning with a dose of 0.5 cc. and increasing 0.5 cc. at a time until 2 cc. is given. Individual variations in dosage are sometimes necessary. The treatment should be begun early and should be prolonged. The majority (seventeen) of the author's cases of pyelonephritis were pure colon bacillus infections. Only one case of pure enterococcus infection was treated successfully. All the others were mixed infections. No complications of severity were noted from the vaccine treatment. Five results were excellent and seventeen satisfactory; three patients were lost from view and in three no results were obtained. One of the last three died from septicemia. Usually there was some improvement between the third and sixth injections; pain is the first to recede, then the temperature drops and the urine becomes clarified, but the bacteriuria persists for a relatively long time. The author feels that autovaccine therapy has given some remarkable results and is virtually indicated in all pyelonephritides.

Delayed Rupture of Amnion.—Numerous factors, according to Leon, determine the moment of rupture of the bag of waters. The principal one is the mechanical and depends on the relation existing between the intra-amniotic pressure during uterine contraction and the elastic properties of the membrane. In delayed rupture, however, the preservation of the amniotic sac is more than merely increased resistance of these tissues alone. The author has attempted to reconstruct the existing conditions by means of an experimental apparatus consisting of connecting chambers representing the forces of the segments of the uterus and the amniotic sac. As a result he believes that transverse expansion of the inferior segment (without marked elevation of the contraction ring) explains the failure of the sac to rupture by increasing the resistance. This is the most common explanation for delayed rupture.

Journal de Chirurgie, Paris

45: 1-160 (Jan.) 1935

Studies on Postoperative Calcemias: One Hundred and Fifty Examinations. R. Leriche and A. Jung.—p. 1.
*Peripheral Facial Paralysis Treated by Cervical Ganglionectomy. T. Ostrowski and W. Dobrzaniecki.—p. 16.
*Experimental Studies and First Clinical Application of New Operation Designed to Increase and Equalize Neuromuscular Function in Partial Nerve Paralysis. A. M. Dogliotti.—p. 30.
Massive Removal of Cancerous Breast and Supraclavicular Glands: Technic. M. Fiolle.—p. 49.
Resection of Erector Nerves and Hypogastric Ganglions. V. Richer. p. 54.

Facial Paralysis Treated by Cervical Ganglionectomy.—Ostrowski and W. Dobrzaniecki treated five patients with peripheral facial palsy by resection of the superior cervical ganglion. The treatment is based on Leriche's paper of 1919. The clinical reports are given with photographs before and after cervical ganglion resection. One fact emerges clearly from those observations: In a persistent paralysis with complete or even partial reaction of degeneration all medical, physical and electrical treatments merely arouse false hopes and are entirely ineffective. In these cases operative treatment is indicated because a prolonged delay inevitably results in secondary muscular contracture. From the standpoint of clinical results, cervical ganglionectomy constitutes a definite advance in operative treatment since, even with the persistence of neurologic degeneration, the external signs of paralysis disappear, thanks to change of muscular forms.

Operation for Partial Nerve Paralysis. — Dogliotti reviews the knowledge concerning the regeneration of nerve fibers. He reports experiments on four dogs, operated on under ether anesthesia. After exposure of the sciatic nerve on the posterior side of the thigh, the nerve was sectioned transversely with a razor a few centimeters below the point of exit of the nerve from the sciatic notch. The superior trunk was divided into two parts, one large (about two thirds) and the other smaller. The larger portion was loosened as high as possible by blunt dissection. This portion was then passed through the body of the posterolateral muscle of the thigh and its free end fixed in the subcutaneous tissue. Following this procedure the animals showed the characteristic paralysis due to sciatic section. They were allowed to run several hours a day. A muscular atrophy occurred in the limb operated on in all instances. After three or four months, functional restoration began to appear. After six or seven months the muscles had reacquired a volume almost equal to that of the other limb. Microscopic examination of the muscles and nerves showed that the regenerated myelin fibers of movement had penetrated and were homogeneously distributed in all the fascicles. These observations demonstrate the peripheral anatomic and functional regeneration of the nerve fibers from a decreased central source. A similar section of the left sciatic nerve was performed on a boy, aged 10, so severely paralyzed by poliomyelitis that no other hope of restored function could be considered. After about four years there was increased movement possible in this limb as compared with the other. The author feels that the operation does no harm, may be accompanied by some improvement, and facilitates other therapeutic measures.

Presse Médicale, Paris

42: 2093-2108 (Dec. 29) 1934

Metastatic Cerebral Tumors. H. Roger and J.-E. Paillas.—p. 2093.
Inferior Auricular Rhythm. R. Lutembacher.—p. 2096.
Hyperinsulinism and Hypoglycemia in Course of Adenocarcinoma of Pancreas. W. Berardinelli.—p. 2098.
Lasting Cure of Bronchial Asthma by Malaria Therapy: Case. C. Costanzi.—p. 2099.
*Application of Histidine to Local Treatment of Certain Cutaneous Lesions. M. Craps and A. Alechinsky.—p. 2100.
What May be Expected from Evipan Sodium. M. Guy.—p. 2101.

Histidine Treatment of Skin Lesions. — Craps and Alechinsky treated ten patients presenting certain local skin lesions by direct daily applications of an aqueous solution of 1:1,000 histidine. The lesions treated were a trophic ulcer of the crest of the tibia, an infected traumatic ulcer, several varicose ulcers, an ulcerated syphilitic gumma, and an ulceration resulting from the curetting of a large verrucous tuberculous lesion on the palm of the hand. In general, without the use of an antiseptic or other treatment the ulcers became rapidly cleansed and soon took on a good color. Tolerance to these repeated dressings was good. In only one case was improvement not noted.

Schweizerische medizinische Wochenschrift, Basel

65: 25-48 (Jan. 12) 1935. Partial Index

Plastic Repair of Defect of Cheek. A. Eiselberg.—p. 25.
Surgery of Intramedullary Neoplasms. F. Sauerbruch and F. Hartmann.—p. 26.
Exploratory Excision by Means of Boring Apparatus. Kirschner.—p. 28.
*Artificially Induced Rigidity of Anterior Mediastinum and Mediastinography. E. Rehn.—p. 30.
Precordial Thoracectomy in Cardiopathies Other Than Pericardial Symphysis. C. Lenormant.—p. 33.
Termination of Large Gastroduodenal Resection with Terminolateral Gastroduodenostomy. H. von Haberer.—p. 36.
Pancreatic Fistulas Following Gastric and Duodenal Resections. H. Finsterer.—p. 40.
*Diagnosis and Treatment of Pancreatic Cysts. E. von Redwitz.—p. 42.

Artificial Stiffening of Anterior Mediastinum.—Rehn shows that the anterior upper portion of the mediastinum plays a special part in the processes of respiration and in the flow of the blood which becomes evident only in space limiting pathologic processes originating in the sternum, the lungs, the organs of the mediastinal space and the loose connective tissue of the anterior mediastinum itself. It is known, from surgical observations, that in disorders of this nature a rigid mediastinum shows an entirely different behavior from that of a loose mediastinum. Rehn devised a method by which rigidity of the mediastinum may be induced, and he also perfected a method of mediastinography that involves no danger for the patient.

Artificial stiffening of the mediastinum was done first by injection of rapidly resorbable fluids, such as physiologic solution of sodium chloride or gum solution, but later the author changed to a coagulable, sterile animal plasma preparation, which is absorbed slowly. He was further encouraged in his attempts at stiffening of the mediastinum by Naegeli's cinematographic roentgen film, which demonstrated that by means of infiltration of the anterior mediastinum it is possible to prevent, even in case of a wide open pneumothorax, the otherwise regularly occurring mediastinal flutter and the dangerous shifting of the heart. He shows that the efficacy of Graf's method of thoracoplasty is due to the preliminary operation, the resection of the first three ribs, an intervention that results in a stiffening of the mediastinum, and he recommends the resection for other thoracic interventions that require a rigid mediastinum and for cases in which a preliminary operation is feasible; otherwise he induces rigidity by infiltration with the coagulable, sterile animal plasma preparation. The author briefly reviews the technic of mediastinography.

Treatment of Pancreatic Cysts.—Von Redwitz treated three cases of pancreatic cysts. A woman, aged 39, complained of a feeling of pressure in the upper portion of the abdomen and also of a nodule, which constantly increased in size. Examination revealed intense pressure pain below the left costal arch. Palpation disclosed a long tumor, the size of a child's head. The lower pole reached almost to the umbilicus. The surface of the tumor seemed to be smooth and its consistency was tense and elastic. The tumor was not moved by respiration or against its base, but the abdominal walls could be moved freely against it. The transverse colon was detectable below the tumor. Demarcation of the spleen was possible by percussion. The following conditions were considered possible: pancreatic tumor, pancreatic cyst, mesenterial cyst or retroperitoneal ganglioneuroma. Following examination of the blood, gastric contents and feces, and after several roentgenograms had been made, it was finally assumed that the patient had a pancreatic cyst, although all reactions indicating disorders of the pancreas were negative. The diagnosis was verified by operation. The difference between pseudocyst and genuine cyst is that the wall of the first has no epithelial covering, while the wall of the second has. Pseudocysts are usually of traumatic origin and are the results of encapsulation of an exudate or a pancreatic sequestrum after injury or necrosis of the pancreas. Genuine cysts are probably due to retention or proliferation. The differentiation of pseudocysts and true cysts frequently requires histologic examination. The author considers surgical treatment the best. The function of the pancreas became abnormal following removal of the cyst from this patient. The carbohydrate metabolism of such patients should be kept under control.

Folia Haematologica, Leipzig

53: 1-112 (Dec.) 1934

Original Form of Basophile Substance in Erythrocytes. Hilde Daum.—p. 1.
*Therapeutic Action Mechanism of Parenterally Introduced, Concentrated Normal Gastric Juice in Course of Pernicious *Anemia. L. Tochowicz.—p. 16.
*Mechanism of Therapeutic Action of Castle's Principle in Pernicious Anemia. B. Braun.—p. 27.
Appearance of Pathologically Granulated Leukocytes in Lead Poisoning in Children. M. Kasahara and M. Nagahama.—p. 37.
Aplastic Anemia or Panmyelophthisis. S. Osato, T. Hashimoto and T. Takigawa.—p. 42.

Action Mechanism of Gastric Juice in Pernicious Anemia.—Tochowicz condensed the gastric juice of hogs or of man in the vacuum at a temperature of 38 C., from which he prepared an acetone extract and, following neutralization and determination of sterility, injected it intramuscularly in doses of from 10 to 30 addisin units, one addisin unit being equivalent to the active principle contained in 100 cc. of the not condensed gastric juice. While this unit cannot be constant, since the quality of gastric juices varies, he thinks that, as long as the blood-forming factor in the stomach has not been identified, a more exact determination of the dose will be impossible. He employed this extract of the gastric juice with success in two cases of pernicious anemia. Reticulocytosis was noticeable only after an adequate amount of the extract had been administered (35 and 30 units, respectively) and it persisted for a long period. There was an increase in the leukocytes up to the normal and a percental reduction of the lymphocytes in favor of the eosinophil and neutrophil granulocytes and the simultaneous disappearance of the signs of degeneration and of pathologic regeneration. Then there was an increase in the number of megakaryocytes and of the blood platelets, a disappearance of the increased hemolysis of the erythrocytes and an increase in the cholesterol content of the blood. During the first stage of the treatment there was a noticeable increase in the activity of the entire bone marrow system, but later this activity subsided somewhat and reached a normal rate. Aside from the persistence of a few megalocytes, there was a complete remission, following treatment with the extract of the gastric juice. The author observed also a reappearance of papillae on the lingual mucous membrane, but the gastric secretion was not influenced. Because of the same therapeutic results obtained with liver and with this extract of the gastric juice, the author is convinced of the identity of the antianemic principle in the two cases. He assumes that the active principle is produced in the stomach and that the liver stores it but also releases it as it is required by the organism. The importance of this method lies in the fact that a single injection of an adequate dose is capable of producing a complete remission and maintaining it for perhaps several months.

Castle's Principle in Pernicious Anemia.—Braun duplicated Castle's method of treatment in two cases of pernicious anemia and studied its mode of action on the bone marrow. In the first patient he let 150 cc. of gastric juice from a hog act on 250 Gm. of raw beef for one hour at 37 C. Then the juice was extracted (from 80 to 100 cc.) and given to the patient by mouth. This procedure was repeated daily for thirty-two days. The author describes the results. The second case was treated similarly except that gastric juice from healthy human subjects was employed. The treatment was continued for forty-three days. The results were similar in the two cases and tallied with those obtained with stomach extract. The author concludes that the hormone which is active in pernicious anemia is produced by the gastric and duodenal mucous membrane of normal persons. Then it is colloid-chemically combined with the administered protein and, following that, it is absorbed by the intestinal mucous membrane. In the liver, in the dried hog stomach, in the liver extract and in Castle's antianemic factor the hormone is bound to a protein fraction. This combination modifies the biologic and physicochemical properties of the therapeutic factors.

Münchener medizinische Wochenschrift, Munich

82: 1-42 (Jan. 3) 1935. Partial Index

Surgical Thrombosis and Embolism. E. Rehn.—p. 1.
Clinical Aspects of Hypophyseal Disorders. W. H. Veil.—p. 5.
*Diagnostic Mistakes in Gynecology. W. Kolde.—p. 10.
What May Cause Chronic Hoarseness? M. Nadoleczny.—p. 13.
Lactic Acid and Choline Action of Sauerkraut. R. Roemer.—p. 18.
Fatal Nicotine Poisoning Caused by Parasiticides. B. Kratz.—p. 19.

Diagnostic Mistakes in Gynecology.—Kolde lays down rules to be observed in gynecologic examinations. He stresses that bladder and rectum should be empty and advises that the bladder be evacuated by means of the catheter to obtain urine for examination. Since rectal examination is absolutely necessary for a complete gynecologic examination, the rectum should be empty. The author stresses that bleeding should not be an excuse for postponement of a gynecologic examination. It is important to determine the etiology of leukorrhea. A watery, profuse leukorrhea, together with rare but severe menstruation, may indicate tuberculosis of the uterus, but a definite diagnosis can be made only on the basis of exploratory curettage, an intervention that requires great caution, since it may bring on an exacerbation of the process. A condition in which an erroneous diagnosis is likely is senile colpitis, in which eczema-like exfoliations and withering take place, changes that may be mistaken for cancer. Erroneous diagnoses are most frequent in case of erosions of the uterine cervix, but if exploratory excision is resorted to they can generally be avoided.

Ulcerations in the vagina may be caused by pressure from pessaries and other devices or may be the result of injuries resulting from measures to induce abortion. In case of the simultaneous appearance of several vaginal ulcerations, the physician must consider whether they are a manifestation of ulcera mollia, of acute ulcer or of syphilis. The diagnosis of prolapse or other positional anomalies of the genitalia must be made with great caution, as they may be simulated by other disorders; for instance, vaginal prolapse by a cyst of the vaginal wall and anteflexion of the uterus by a myoma nodule of the fundus. After discussing the diagnosis of normal and pathologic frequency, the author stresses once more the factors that are important in exploratory curettage. He shows that it is advisable to make the intervention under anesthesia and emphasizes that the microscopic examination of the curettage material should never be neglected. Polyps removed from the genitalia should likewise be carefully examined. In case of backache, which is a frequent symptom of gynecologic disorders, not only should the pelvic organs be examined but the patient should be submitted to a thorough general examination. In chronic irritation of the appendix, the uterine adnexa are often involved and the appendectomy must consider the gynecologic rather than the purely surgical implications.

82: 43-82 (Jan. 10) 1935. Partial Index

Exercise in Restorative Surgery. K. Gebhardt.—p. 43.
Two New Methods of Artificial Respiration. C. J. Mijnlieff.—p. 44.
*Three Years' Experiences with Acetylene Insufflation of Subarachnoidal Space in Suppurating Meningitis: Orbital Puncture. O. Zeller. —p. 47.
*Practical Experiences with Zeller's Method of Treatment of Meningitis. A. Jauerneck.—p. 51.
Clinical Aspects of Cardiac Asthma. G. Budelmann.—p. 52.
*Rapid Determination of Sedimentation Speed. Holzapfel.—p. 66

Acetylene Insufflation of Subarachnoidal Space in Meningitis.—In 1928, when Zeller first reported his method for the treatment of meningitis, he stressed two points: (1) the thorough removal of the infectious cerebrospinal fluid and (2) the rapid refilling of the spaces with fresh, nontoxic cerebrospinal fluid. To counteract the danger produced by the sudden reduction in pressure, he decided to fill the subarachnoid space and the ventricles with gas and he chose purified acetylene, which, because of its high solubility (thirty-three times as great as oxygen), eliminates the danger of gas embolism. He did not hesitate to remove all the cerebrospinal fluid. To effect a more rapid renewal of the cerebrospinal fluid, he resorted to Bier's cervical stasis, repeated three times daily. In cases in which the cerebrospinal fluid contained thick pus, the author resorted to the intravenous infusion of a 0.2 per cent solution of sodium chloride. By lumbar puncture a considerable amount of spinal fluid is withdrawn and, when the pressure has been somewhat relieved, gas is introduced under a pressure of 40 cm. of water. The escape of numerous gas bubbles from the trocar indicates that all the fluid has been removed. He tried to utilize the bactericidal power of ether vapors by having the acetylene gas pass through a bottle partly filled with ether. Provided the temperature of the ether does not exceed 22 C., excessive dosage does not have to be feared. The author thinks that in cases in which access to the cerebral subarachnoidal space is not possible by the usual method the orbital puncture, the ventricular puncture or puncture of the corpus callosum may eventually be resorted to. However, the suboccipital puncture is less dangerous in cases of partial or total spinal blockage. He reviews the results obtained in various forms of meningitis and thinks that his method will cure some cases that would otherwise be hopeless.

Treatment of Meningitis by Zeller's Method.—Jauerneck describes his experiences with Zeller's acetylene insufflation in thirty-six cases of meningitis, of which fifteen went on to recovery. He stresses the necessity of early treatment. Several hours' delay may destroy all prospects of recovery. He is convinced that the dangers of the method are slight. With the exception of mild symptoms of collapse he never observed deleterious effects. He admits that Zeller's method is only one aspect of meningitis therapy. However, he thinks that it might save some patients who otherwise would be incurable.

Rapid Determination of Sedimentation Speed.—Holzapfel employs a centrifuge and the well known Linzenmeier tubes, which, however, should have millimeter graduations. The tubes, containing 0.2 cc. of a 5 per cent solution of sodium citrate and 0.8 cc. of blood, are centrifugated for a minute at 3,500 or 3,600 revolutions. Then the clearly defined column of serum is measured. The author determined in numerous experiments that values of from 16 to 20 mm. are not yet accelerated, while values of over 20 are accelerated and those of less than 16 are retarded. The lowest value that he determined with this method was 8 mm. and the highest 36 mm. The author shows a table in which the values, according to Linzenmeier, are compared with those obtained in the centrifuge. He concludes that the centrifuge method is advantageous in polyclinics and similar institutes where immediate decisions are necessary.

Wiener klinische Wochenschrift, Vienna

48: 1-32 (Jan. 4) 1935

Present-Day Aspects of Eugenics. Wagner-Jauregg.—p. 1.
Relation of Race Hygiene to Hygiene and Medicine. H. Reichel.—p. 2.
Several Cyto-Architectonic and Morphologic Peculiarities in Brain of Sculptor. L. Horn and O. Pötzl.—p. 5.
Scientific Detection of Paternity. J. Weninger.—p. 10.
Genealogical Structure Analysis and Eugencis. G. Engerth.—p. 13.
*Impairment of Offspring After Postencephalitic Parkinsonism. H. Hoff and W. Wieser.—p. 16.
Population Policy and Physician in Reconstruction of Austria. H. Orel. —p. 18.
Constitution in Skin Diseases. R. Brandt.—p. 22.
Nature and Significance of Mutations. R. Polland.—p. 24.

Effect of Postencephalitic Parkinsonism on Offspring.—Hoff and Wieser observed several children with cerebral disturbances whose fathers had postencephalitic parkinsonism. Procreation had taken place after the fathers had acquired epidemic encephalitis. They give the histories of three children, of whom all had paretic disorders of the extremities, two were idiotic and one manifested choreal restlessness and a tendency to sexual delinquency. Since it is known that in the chronic stage of epidemic encephalitis the region of the third ventricle and of the hypothalamus is damaged, the authors studied the effect of an artificially induced impairment of this region on the offspring of mice. Experiments on male animals revealed that severe damage of the thalamic-hypothalamic region completely destroyed the procreative capacity, although the genitalia showed no changes. After a less severe impairment the offspring could not be carried to term or were not viable, while in case of slight damage the offspring, although viable, nevertheless showed permanent or temporary disturbances. This impairment of the offspring was produced only by damage to the thalamic-hypothalamic region, for injuries produced in other parts of the brain, although they were followed by severe neurologic disturbances in the animals so treated, did not result in an impairment of their offspring, which were begotten after the animals had had some time to recuperate. In spite of the fact that women with postencephalitic parkinsonism were not known to have defective offspring, the authors made experiments on female animals. They gained the impression that the impairment of the thalamic-hypothalamic region of female animals also has a deleterious effect on the offspring. They believe that, since a sterile impairment of the brain of animals produced in the offspring effects similar to those following encephalitis in man, the secondary changes in the hypothalamic region and not the infection (encephalitis) as such cause the impairment of the offspring after encephalitis.

48: 33-64 (Jan. 11) 1935. Partial Index

Thrombosis and Embolism. H. Eppinger.—p. 33.
Effects of Sterilization Operations in Animal Experiments and in Men. F. Spath.—p. 36.
*Internal Drainage of Large Pancreatic Cyst by Means of Pancreato-Gastrostomy. G. Vecchi.—p. 45.
*Gonorrhea as Example of Bacterial-Allergic Processes. C. Engel and M. R. Vigliani.—p. 48.
Sources and Modes of Infection in Typhoid. V. Gegenbauer.—p. 51.
Treatment of Diphtheria in Patients with Asthma. P. Freud.—p. 54.

Internal Drainage of Pancreatic Cysts.—Vecchi differentiates between pseudocysts and true cysts of the pancreas and discusses the treatment. In true cysts, complete extirpation of

the cystic wall is advisable. In pseudocysts this treatment is not feasible because of the extent of the cystic sac, its close connections with other abdominal organs and the absence of a true cystic wall that might be easily detached. The best treatment of the pseudocysts is the suturing of the cystic wall into the peritoneum and subsequent opening of the cyst (marsupialization). This method produces favorable results in many cases, but occasionally there develops a fistula, which may persist for a long time. Various measures have been employed to remove these fistulas, but some of the surgical ones are not without danger, while in others, although they are more effective, the technic is rather difficult. He mentions implantation into the stomach, the intestine or the gallbladder. It seemed desirable in some cases of pseudocysts to dispense with marsupialization and produce at once a connection of the cyst with a hollow organ and thus effect internal drainage. He describes a case in which, following evacuation of the cystic fluid, he made a direct connection between the cyst and the anterior wall of the stomach, near the large curvature. The anastomosis was secured by two Gersuny wicks. Sixteen days later, these drainage wicks were removed from the anastomosis. At a roentgenoscopy several weeks later, it was impossible to detect a connection between stomach and pancreatic cyst. Examination several months later revealed that the patient was entirely free from complaints and that she had gained weight. The author concludes that internal drainage deserves consideration in the treatment of pseudocysts of the pancreas; however, it is necessary to give attention to the danger of reflux of gastric, intestinal or biliary contents. He emphasizes that the complications likely to be caused by reflux from the respective organ are essentially different from those found in cases of acute necrosis of the pancreas. In the choice of the selection of the organ to be used for anastomosis, the location of the cyst and the technical possibilities must guide the surgeon.

Gonorrhea as an Allergic Process.—Engel and Vigliani report studies in which they show that, by means of a gonococcus toxin, a specific gonorrheal allergy can be demonstrated. They show that the intradermally demonstrable allergy is a true bacterial allergy, for the passive transmission experiment of Praussnitz and Küstner succeeded. The two-stage intradermal reaction results in manifestations of local immunity in the skin as an indicator of an excess of antibodies. This excess appears independent of the maturation period that is observed in serum disease and in the nine-day exanthem; however, it is dependent on the reduction of the gonococci in the foci of the disease. This observation represents an essential modification of the two-stage tuberculin reaction. In view of the factors mentioned, gonorrhea may be considered a disease that permits the observation of bacterial allergic processes and with this the determination of biologic standards also applicable to tuberculosis, for (1) a specific antigen is present, (2) the direct microscopic demonstration of micro-organisms is nearly always possible, and (3) the bacteria are removed entirely from the body when cure is established.

Zeitschrift für klinische Medizin, Berlin

127: 499-608 (Dec. 19) 1934

Rest Nitrogen and Xanthoprotein Reaction in Blood Obtained During Death Agony and from Cadavers. F. Wuhrmann.—p. 499.

Blood Stream Resistance in Arterioles, Capillaries and Venules of Human Skin. E. Kobrak.—p. 514.

*Anatomopathologic and Experimental Investigations on Renal Changes in Bence-Jones Proteinuria. E. Randerath.—p. 527.

Influence of Epinephrine on Circulating Quantity of Plasma and Blood in Chronic Enlargement of Spleen. W. Grunke.—p. 542.

*Aspects of Hyperproteinemia. Helene Bürkel.—p. 552.

Relations Between Uremic Reaction and Increase in Rest Nitrogen of Nephrogenic and Nonnephrogenic Origin, as Well as Between Uremic Reaction and Xanthoprotein Reaction According to Becher. F. Chrometzka and H. Stark.—p. 561.

Circulation of Capillaries in Organic Hemiplegia. G. Marinescu, H. A. Bruch and N. Vasilescu.—p. 578.

Studies on Behavior of Serum Protein Bodies by Means of Weltmann's Reaction. J. Kretz and Olga Kudlac.—p. 590.

Renal Changes in Bence-Jones Proteinuria.—Randerath aims at determining whether the renal changes that exist in case of elimination of Bence-Jones protein bodies are to be differentiated from the nephroses (Bohnenkamp, Ehrich) and whether, as Ehrich suggested, the Bence-Jones kidney represents a particular (the fourth) type within the group designated as Bright's disease. He reaches the conclusion that the giant cell formations in the tube casts, on which Ehrich had put especial emphasis, are neither characteristic for a certain type of nephrosis nor justify the differentiation of a fourth type of Bright's disease. On the contrary, his studies demonstrated that the formations considered by Ehrich as the basis of hydronephrosis are really the results of prolonged and severe elimination of protein and thus represent late manifestations in the course of chronic nephroses, and that they may appear also in the course of diffuse glomerular nephritides, particularly in those with nephrotic aspects. For this reason the author adheres to the classification that groups the Bence-Jones kidney with the nephroses, with the reservation that, just as in other nephroses, he doubts that a primary "degenerative" process takes place in the renal parenchyma in Bence-Jones nephrosis. He rather assumes, at least for the onset of the renal changes characteristic for the Bence-Jones proteinuria, a process that is to be classified with the storage nephroses.

Hyperproteinemia.—Bürkel demonstrates that in diffuse disturbances of the bone marrow, such as pernicious anemia, leukemia and more localized disease of the bone marrow (carcinoma metastases), the maximum and minimum values of the protein content of the blood serum generally do not deviate greatly from the normal values and that the averages remain within normal limits. Of all the disorders of the bone marrow, only myeloma presents the symptom of hyperproteinemia, and not even all cases of myeloma manifest this symptom. However, it must not be overlooked that, histologically considered, myeloma is not a uniform condition, for it may consist of various types of cells, of myelocytic, myeloblastic and lymphocytic elements and of structures resembling plasma cells. Moreover, there are myelomas that consist of cells resembling erythroblasts. The myeloma described by the author consisted of giant cells of the bone marrow (megakaryocytes) and thus it may be grouped genetically as belonging to the myeloid system. Moreover, megakaryocytes were detected in liver and spleen, which is a further indication that in this case there existed a disturbance of the myeloid system. The author assumes that hyperproteinemia is perhaps a specific symptom of those myelomas that originate in the so-called myeloid cells and also of other disturbances that originate in the myeloid portion of the bone marrow.

Zeitschrift für Tuberkulose, Leipzig

72: 1-80 (Jan.) 1935

Carbohydrate Assimilation in Various Forms of Tuberculosis of Childhood, Particularly in Tuberculous Pulmonary Infiltrates. E. Mahr.—p. 1.

*Asbestosis and Pulmonary Tuberculosis. L. Martz.—p. 11.

*Relations Between Erythema Exudativum Multiforme and Tuberculosis? H. Mayrhofer.—p. 15.

Further Experiments on Increasing Virulence of B C G Artificially. F. Gerlach, J. Brosch and M. Kaplan.—p. 21.

Modification of Acid-Fastness of Tubercle Bacillus by Saponin. Marie Maxim.—p. 27.

*Intrapleural Calcium Therapy in Pneumothorax Exudates. H. Kriech.—p. 31.

Asbestosis and Pulmonary Tuberculosis.—According to Martz, asbestosis develops as a rule from five to fifteen years after the beginning of the inhalation of asbestos dust. Its first symptoms are shortness of breath and coughing with expectoration. Later there are added pallor, cyanosis, palpitation of the heart, loss of appetite and of weight and piercing pains during breathing. In advanced cases, dyspnea and cyanosis predominate and death is usually caused by cardiac insufficiency. In the beginning stages clinical examination reveals hardly any pulmonary changes, but later a diminution in the resonance is perceptible over the lower parts of the lung and dry and cracking sounds are heard over the basal portions. In the roentgenogram, three stages may be distinguished. During the first stage there is a greater density in the hilus shadows, the movement of the diaphragm is reduced and the lungs show more reticular and honeycombed outlines. The second stage is characterized by the appearance of numerous fine focal shadows, primarily in the lower portions of the lung. During the third stage the diaphragm is immobile, the outlines of heart and

diaphragm are no longer sharply differentiable and the lower and partly also the middle fields are clouded by numerous fine focal shadows, or the shadow may be homogeneous. Following a description of the necroptic aspects of the lungs of patients with asbestosis, and of the development of the asbestos bodies, also called "curious bodies," the author discusses the concurrence of asbestosis with pulmonary tuberculosis. He reports the history of a woman, aged 30, who from the age of 17 to 22 worked in an asbestos factory. During this time she had no complaints, but six years later she resumed work in the asbestos factory for ten months and the disorder appeared suddenly. He assumes that the renewed inhalation of asbestos dust may have activated a tuberculosis and that this in turn contributed to a more rapid manifestation of the asbestosis. He concludes that the prognosis is unfavorable in case of a concurrence of asbestosis and tuberculosis. In the case reported, treatment for thirteen weeks in a sanatorium was without beneficial effects.

Erythema Exudativum Multiforme and Tuberculosis.—Mayrhofer reports observations that indicate a relationship between the two disorders. He calls attention to a case in which the recurrent attacks of erythema exudativum multiforme did not cease until tuberculin treatment was instituted. In another case there was erythema nodosum, erythema exudativum multiforme and a rudimentary polyserositis. Because of the similarity of disturbances of the serous membranes that accompany erythema nodosum, erythema exudativum multiforme and so-called articular rheumatism to the true tuberculous serositides, and because of the detection of tubercle bacilli in the blood during acute polyarthritis (Löwenstein, Busson and Popper), it appears that the rheumatic genesis of polyarthritis, as well as of erythema exudativum multiforme and erythema nodosum, may be doubted. The author believes that a relationship to tuberculosis is highly probable, at least in a certain group of cases of erythema exudativum multiforme.

Intrapleural Calcium Therapy in Pneumothorax Exudates.—Kriech says that the intramuscular injection of calcium helps to prevent exudate complications but that its results are not so satisfactory once the exudate formation has set in. He resorted to the direct intrapleural application of calcium. At the exploratory puncture, when the necessary quantity has been withdrawn for purposes of examination, he mixes in the syringe from 5 to 10 cc. of a 10 per cent solution of calcium gluconate with the exudate and injects it. In many instances this measure arrests the exudation. Neither the fever nor the exudate increases further, and pulse and temperature quite often become reduced. However, after one or two days there frequently is a renewed increase. Then the puncture is repeated, some fluid is withdrawn and from 10 to 20 cc. of calcium gluconate is introduced. After that there generally is an improvement and within from ten to twenty days complete resorption of the exudate takes place. During this time the patients are usually bandaged twice daily, but no other treatment is employed. A refilling of the pneumothorax is as a rule unnecessary, since the air is absorbed rather slowly during this time, and within three weeks the complication has generally passed, provided the exudate is sterile. The author stresses as an especial advantage of this form of calcium therapy that the subsequent development of adhesions is slight and that it prevents plastic pleurisy.

Zentralblatt für Gynäkologie, Leipzig

59: 65-128 (Jan. 12) 1935. Partial Index

Newer Results of Research on Hormones of Gonads and Hypophysis. A. Butenandt.—p. 71.

*Experimental Investigations on Influence of Female Sex Hormones on Carbohydrate Metabolism. S. Lehwirth.—p. 78.

Influence of Hormone of Anterior Lobe of Hypophysis on Ovaries Impaired by Rays. F. Heimann.—p. 83.

Reactivity of Muscles of Uterus to Solutions of Pituitary and to Epinephrine Under Influence of Hormone Preparations. P. I. Fomina.—p. 91.

Influence of Female Sex Hormones on Carbohydrate Metabolism.—Lehwirth studied the influence exerted by various female sex hormones on the carbohydrate metabolism of sexually mature female rabbits. The experiments were made with the gonadotropic hormone of the anterior hypophysis, with the fat-soluble follicular hormone, with the corpus luteum hormone and with the combination of the follicular hormone and the corpus luteum hormone. Prolonged treatment with the gonadotropic hormone of the anterior hypophysis resulted in a slight reduction of the sugar content of the blood. In the acute experiment (ten hours) the sugar content did not decrease after the first tolerance test with the hypophyseal hormone, but it did decrease after a longer preliminary treatment with the hormone. Already the first tolerance test with the fat-soluble follicular hormone or with the corpus luteum hormone resulted in a reduction of the blood sugar in the ten hour experiment. This reduction did not increase after prolonged administration of these hormones. Preliminary treatment with estrogenic preparations abolished the blood sugar reducing effect of the corpus luteum hormone. Studies on the modification of the carbohydrate tolerance, following preliminary treatment with the estrogenic substances mentioned, revealed that all these hormones weakened the glycemic reaction produced by the oral dextrose tolerance test.

Acta Chirurgia Scandinavica, Stockholm

75: 469-575 (Dec. 15) 1934

Blood Changes in Clinical Thrombophlebitis and Their Clinical Significance. P. Windfeld.—p. 469.

*Diagnosis by Arthrography of Lesions of Meniscus. R. A. Lagergren. —p. 485.

Extensive Resection of Lower Jaw for Cancer. N. V. Åkerblom. —p. 513.

Question of Spontaneous Rupture of Spleen. M. Dahle.—p. 519.

Postoperative Follow-Up Studies of Meniscal Injuries with Especial Regard to Prognosis. S. Anderson.—p. 534.

Spontaneous Rupture of Spleen. G. Lundell.—p. 547.

Endometriosis of Urinary Bladder. F. Settergren.—p. 571.

Diagnosis by Arthrography of Lesions of Meniscus.—Lagergren reports his investigations with roentgenography of the knee joint, utilizing 20 cc. of 17.5 per cent diodrast. With this opaque substance and by a simple technic he was able to demonstrate meniscal injuries in clinically uncertain cases. It was also possible to give a detailed description of the type and extent of the damage proved on arthrotomy. To get a good result it is important to take the roentgenograms of the knee in an oblique direction, as thereby a relatively free projection of the different parts of the menisci can be obtained. The effect of the opaque substance on the joint was studied. The author examined the cytologic conditions of the synovial fluid before and after the injection of the opaque substance and also tested the albumin and iodine contents of the synovia. In a number of cases in which operation was performed twenty-four hours after arthrography, a portion of the capsule was excised for microscopic examination. He emphasizes the difficulties encountered in the proper evaluation of the condition of the lateral meniscus.

Ugeskrift for Læger, Copenhagen

96: 1395-1424 (Dec. 20) 1934

*Silicosis in Porcelain Workers Seen from Roentgenologic and Some Clinical Points of View. P. F. Møller.—p. 1395.

Preliminary Experiments with Addition of Diet Rich in Vitamins for Patients with Lupus Vulgaris. S. Lomholt.—p. 1403.

Silicosis in Porcelain Workers.—Møller says that roentgen examination of 828 porcelain workers revealed silicosis in 361, or 45.2 per cent, 213 of these being in the second stage or beyond. The silicosis was a slowly but steadily progressive form of comparatively benign peribronchial-perivascular-nodose type with tendency to early interstitial changes. Of the workers employed for a period of from twenty-six to thirty years, 58 per cent had silicosis; of those employed for fifty years, 100 per cent had silicosis. Although the men and women were with few exceptions capable of work at the time of examination, it was found that the morbidity among the workers having silicosis was high, the tendency to disturbances of the respiratory tract was greater than in those without silicosis, and half of the deaths were caused by respiratory disorders. The investigations further showed that persons with silicosis are also exposed to other dangers, namely, spontaneous pneumothorax and cardiac degeneration, even at an early stage of the disorder. Complication with tuberculosis was comparatively rare and grave cases of tuberculosis were not seen. Complication with emphysema was extraordinarily frequent.